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## THERAPEUTIC PROBLEMS ENCOUNTERED IN ACUTE POLIOMYELITIS

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MANY PEOPLE speak of poliomyelitis in the same way that they do of the weather, that is, we know a lot about it, but we cannot do anything to control it. In general, this may be true insofar as the control of epidemics is concerned, and it is also probable that we will be able to do little about this phase of the problem until a satisfactory method of vaccination is perfected. At present our main efforts are directed against the mortality and complications of the acute phase, and toward improved muscle re-education and rehabilitation of the subacute and convalescent stages. These latter phases of the problem are extraordinarily important but do not lie in the province of this paper. The aim of this paper is to review the therapy of the acute phase. It is particularly important that all practitioners be aware of the problems encountered in the acute case since decisions about therapy are frequently made while waiting for transfer of the patient to a "polio center."

Specific therapy against the poliomyelitis virus has not yet been found. Immunotherapy with anti-serums from horses or convalescent serum from human cases no longer is accepted as being of real value. Convalescent serum is still used in a few places with the feeling that it might do some good but at least does no harm. However, the experience of the early thirties with comparisons of carefully controlled groups of treated and un-

treated cases has taught us the futility of serum therapy. This has been re-emphasized recently by the carefully controlled studies of Bahlke and Perkins, in which no therapeutic effect followed the administration of large doses of gamma globulin representing huge amounts of human plasma.<sup>1</sup>

Numerous drugs have been suggested in the past and have been tried in sporadic instances. In some cases coincidental improvement occurred, so that false hopes for a cure arose. The most recent drug to be given a clinical trial was phenosulfazole, or "darvisul," which came to attention this past summer. Because of some encouraging experiments with a mouse encephalomyelitis virus carried out by Sanders, this drug was used rather extensively in Texas and North Carolina in 1948. Unfortunately, the resultant publicity was a little premature, as well as somewhat overly optimistic, and the lay press assumed that a cure had been found. Our experience with phenosulfazole began somewhat late in our epidemic, but recognizing the need for a controlled study, we alternated early nonparalytic cases in order to compare the results in treated and untreated cases.<sup>†</sup> In a disease as variable as poliomyelitis it must be emphasized that the results of isolated treated cases have no significance, and that one cannot compare the results in different epidemics or patients treated at different periods during the same epidemic. Due to the limited supplies of the drug, at first we limited our cases to alternate nonparalytic children and to all patients with bulbar or respiratory

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<sup>†</sup>Darvisul was kindly provided by Lederle Laboratories for this study.

## ACUTE POLIOMYELITIS—LAWSON

TABLE I. PHENOSULFAZOLE TREATMENT OF  
POLIOMYELITIS

Cases Treated:	
Nonparalytic	18 (Alternated series)
Febrile Paralytic	12
Bulbo-Respiratory	12
Total	42
Reactions:	
Nonparalytic Group	
Vomiting in Treated Group	12 (67%)
Vomiting in Control Group	2 (11%)
Bulbo-Respiratory Group	
Hemolytic Anemia	1

disease. The latter group was included since it was felt that some additional information might be gained if a decided difference in mortality rates was found. In all we treated forty-two patients; eighteen were nonparalytic on admission and were compared with eighteen alternate controls; twelve were bulbo-respiratory cases, and twelve were febrile paralytic patients who were treated without controls at the end of the epidemic (Table I). The results of treatment of the first group were evaluated by comparing the incidence of new paralysis in the two groups and by comparing the duration of fever in the two groups (Table II). It is obvious that no significant difference was found, although this group is still too small to have statistical significance. In comparing the deaths in the bulbo-respiratory groups there is an apparent improvement in the treated series. However, this improved mortality loses its significance when one realizes that these are not alternate cases and most of the untreated series were early in the epidemic at which time certain improvements in care were not in operation. Minor reaction to this drug was common, as shown by the incidence of vomiting. Only one serious reaction, a severe hemolytic anemia, was encountered. Although extensive controlled studies have not been made, it is now the impression of other groups also that phenosulfazole is ineffective in the treatment of poliomyelitis, and laboratory studies in experimental animals bear this out.

The newer antibiotics such as aureomycin and chloromycetin are also ineffective in experimental infections and almost surely are of no value in human cases. The search for a specific drug must be encouraged, but even if found it would be of very limited usefulness because of the rapidity of the destruction of nerve cells after infection occurs. Despite the fact that patients were hospitalized just as soon as the diagnosis was suspected, 65 per cent of our patients were already paralyzed

TABLE II. RESULTS OF PHENOSULFAZOLE  
TREATMENT

Nonparalytic Group		Treated	Not Treated
Cases		18	18
New Paralysis		5 (28%)	5 (28%)
Fever < 100.5°			
From Onset		3.6 days	4.0 days
From Admission		2.2 days	1.6 days
Fever < 99.5°			
From Onset		4.6 days	5.1 days
From Admission		3.5 days	2.7 days
Bulbo-Respiratory Group			
Cases		12	19
Deaths		2 (16%)	6 (31%)

by the time of admission. This rapid nerve cell damage offers an almost insurmountable obstacle to effective drug therapy.

The antibiotics, particularly penicillin, do have a place as prophylactic agents against secondary bacterial infection. We feel that all bulbo-respiratory cases should be treated with penicillin in order to decrease the incidence of pneumonia in these cases.

Another approach to the therapy of the acute stage has been an attempt to relieve the pain and muscle spasm that is present in most of the patients. This is not only for comfort, but also to decrease the disability caused by the muscle spasm, and to make easier the re-education of the muscles. The older techniques of prolonged immobilization in splints or casts have been almost universally abandoned in favor of hot moist packing or hot tubs. It is my impression that the variations of this regime to suit the individual patient that are now being practiced are definite improvements over the older methods. Various drugs have been used to help relieve this muscle spasm. Prostigmine was given an extensive trial in North Carolina in 1944, and elsewhere, but there never seemed to be a statistically significant difference in treated and untreated cases. Curare has also been advocated to relieve the excess muscular activity. It is possible that small doses of curare may have a place in relieving the occasional patient with respiratory embarrassment from spasm of the thoracic muscles. However, I have not been particularly impressed with the beneficial results reported from the use of this drug. Curare is a dangerous drug and should not be used lightly, but if the attending physicians are familiar with its use, there may be instances where muscle relaxation with curare might be attempted.

The most recent drug used for muscle relaxation is priscoline reported upon by Smith and his

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TABLE III. BLADDER PARALYSIS IN POLIOMYELITIS, 1948

Admissions—169	Bladder Males—21	Involvement—40 Females—19	(23.6%)
<i>Age Incidence in Years:</i>			
0—4	5—9	10—14	14—19 >20
<hr/> 22	<hr/> 10	<hr/> 6	<hr/> 1 1
<i>Treatment:</i>			
Nonspecific	8 (20%)		
Furmethide	32 (80%)		
<i>Results of Treatment:</i>			
Good	31 (97%)		
Poor	1 (3%)		
Reactions	7 (22%)		

group last fall.<sup>6</sup> They believe that pain and spasm is due to persistent vasospasm set up by involvement of the sympathetic nervous system. With this in mind they treated poliomyelitis patients with intravenous procaine and then tried priscoline. A total of seventy-three patients were treated with priscoline hydrochloride by either intramuscular or oral administration. Symptomatic relief of spasm and pain was achieved in all cases in from one to fourteen days. It is too early to evaluate this drug at present since unfortunately this was not a controlled series of cases giving objective comparisons with untreated alternate cases. However, it does warrant further study and may prove to be a very significant advance in our treatment of this phase of the problem. We have not had an opportunity to treat enough children to have any opinion on its value. One child with severe pain and spasms was treated to the point of flushing for several days without noticeable improvement.

The complication of paralysis of the bladder has been treated very satisfactorily with one of the newer parasympathomimetic drugs, furmethide.<sup>2,3</sup> Beginning in the 1944 epidemic we were impressed with the inconvenience and the danger of repeated catheterization in patients with paralysis of the bladder. At that time we were able to achieve satisfactory voiding in about 70 per cent of the twenty-one patients treated. Since then we have had an even better experience as we have learned more about the dosage. In 1948, 169 patients were admitted with acute poliomyelitis to the North Carolina Baptist Hospital, of whom forty (23.6 per cent) developed some difficulty with voiding (Table III). Of these, thirty-two (80 per cent) developed retention and failed to void after the usual nonspecific measures. Furmethide was administered to this group with satis-

TABLE IV. DOSAGE OF FURMETHIDE

Age of Patient (Years)	Subcutaneous	Oral
0—4	1.25-2.5 mg.	2.5 mg. t.i.d.
5—9	2.0-3.0 mg.	5.0 mg. t.i.d.
10—14	2.5-5.0 mg.	5 to 20 mg. t.i.d.
15—19	2.5-5.0 mg.	
>20	2.5-5.0-7.0 mg.	

factory voiding in all but one adult. This man had been catheterized for four days before admission, and subsequently was discharged to the convalescent hospital with a retention catheter in place. This patient developed strong bladder contractions, but apparently sphincter spasm prevented voiding. In such cases the concurrent use of ergotamine tartrate has given release of sphincter spasm and resulting voiding, but this latter drug was not in use at the time this patient was seen. Our method of treatment has been to try to establish voiding by nonspecific measures if possible. When these measures are not successful, the smaller dose shown in the table is given subcutaneously, and the patient is then given the oral drug for two to five days (Table IV). If neither voiding follows nor other effects of parasympathetic stimulation such as flushing, sweating, or increased salivation, the dose is repeated in one hour or the larger dose is given. When strong bladder contractions follow but voiding does not occur, ergotamine tartrate is given with the repeated dose of furmethide. In some instances oral medication is sufficient to establish voiding. Undesirable reactions due to a generalized parasympathetic stimulation occurred in seven (22 per cent) of this series. Atropine sulphate immediately counteracts the effect of furmethide and was used for three of these patients. The one serious reaction that must be recognized is marked salivation in a patient with bulbar disease. In such cases one must be very cautious with this drug and be particularly careful to have atropine at hand in case an increase of salivation becomes troublesome.

Almost all of the deaths in acute poliomyelitis are found in the bulbo-respiratory group so that one should pay particular attention to these patients. Except for occasional patients who die with signs of central involvement only, these fatalities are due to direct paralysis of the respiratory muscles, or to secondary respiratory failure from interference with air exchange such as paralysis of the muscles of swallowing causing excess accumulation of mucus, involvement of the larynx, atelectasis, and pulmonary edema. It

\*Kindly supplied for this study by Smith, Kline and French Co.

is very important to distinguish between these various factors, for the immediate treatment instituted will often mean the difference between life and death. For example, it is obviously important not to put a patient in a respirator whose difficulty is not respiratory paralysis but interference by mucus caused by pharyngeal paralysis. Extremes in postural drainage with the patient lying on his face, and careful suction of the pharynx are imperative for this latter type of case. In some instances of laryngeal obstruction and in the occasional patient where the excess mucus cannot be satisfactorily drained, tracheotomy may be necessary. The indications for tracheotomy have been re-emphasized recently by the Minneapolis group,<sup>2,5</sup> but we feel one should not be carried away in an overzealous use of this procedure. We surely do not feel that it should even approach being a routine in the treatment of bulbar cases.

There are some details in the management of respiratory paralysis that should be restated. Although many patients with paralysis of the respiratory muscles may get along without ever needing the help of the respirator, one should not postpone its use too long. The serious results of anoxia are well recognized, and if one waits for advanced anoxia to occur, permanent damage may have resulted. Oxygen therapy with or without the respirator is of great benefit. The improvements in the oximeter will make this instrument particularly valuable for following patient's oxygen saturation.

When a patient is put into a respirator, he must be observed very closely in order to prevent the complications of atelectasis or pulmonary edema. It is common experience to have a patient improve immediately as his inadequate respiratory efforts are taken over by the respirator, only to have him suddenly or gradually become anoxic again. One of the major reasons for this is the appearance of atelectasis or pulmonary edema. The main reason for this seems to be an increase in edema fluid due to the negative pressure, and the stagnation of edema fluid in the dependent portions of the lung. Much can be done to prevent these complications by careful attention to changes in the patient's position. Although we are all familiar with the need of changing the position of postoperative patients, one frequently sees patients in respirators left lying flat for days! Not only should the respirator be tilted in a longitu-

nal plane, but the patient should also be turned frequently. We feel that the tilting of the bed is insufficient; therefore, we alternate the patient from back lying to complete face lying at least every two hours. One often hesitates to disturb the patient to this extent, but we feel that later difficulties can be avoided by doing so.

Another aid in preventing atelectasis and pulmonary edema is the use of a positive pressure mask using either oxygen or oxygen air mixtures.<sup>4†</sup> This technique was tried first in a patient who had gradually lost almost all air exchange after being in a respirator two days. Pharyngeal mucus was no problem, and bronchoscopy revealed no laryngeal obstruction nor bronchial plugging. Since positive pressure breathing will clear up pulmonary edema, this child was given positive pressure oxygen through an automatic cycling apparatus for several hours. Gradually the air exchange improved, and she was then alternated with the respirator and the positive pressure oxygen. Since that time we have continued to use this apparatus both therapeutically and also prophylactically. It is now our custom to give five to fifteen minutes of positive pressure breathing to all respirator patients every one to two hours. This device is also very useful to carry along a patient when the respirator must be opened for x-rays, bed changing, and other treatments. It does essentially the same thing as the new positive pressure domes, and can be used for several patients in rotation. We feel that the use of this positive pressure breathing during the first days in a respirator does much to prevent both pulmonary edema and atelectasis. Of course, once atelectasis has occurred, bronchoscopic drainage is necessary.

In summary I want to re-emphasize the two main facets of acute and convalescent care in poliomyelitis patients. Tremendous strides have been made in improved techniques of muscle re-education and the rehabilitation of paralyzed patients in the convalescent stage. However, most of this care falls into the hands of the orthopedic specialists and their able assistants, the physical therapy technicians. The care of the acute case is the province of the original family physician, the pediatrician or internist and the nose and throat specialist. By the co-operation of this latter team and the continual search for improved

<sup>†</sup>The positive pressure device used in this study was obtained from Mine Safety Appliances Company.

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## RECURRENCE FOLLOWING INGUINAL AND FEMORAL HERNIA OPERATIONS

### Three to Seven and One-half Years Follow-up

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THE SURGICAL repair of an inguinal or femoral hernia, though not generally considered a difficult operation, is not 100 per cent successful. Recurrences plague nearly every surgeon who cares to look for them, and "new" operations are frequently described, indicating failures with the old.

It appears to be the general opinion of writers on hernia that if a recurrence can be successfully treated at a second operation, there must have been an error at the first one, and that an appreciable recurrence rate reflects on the ability of the surgeon more than on any other factor.<sup>7,17,21</sup> Hence a close study of any recurrences that may appear is probably the best approach to improved results in hernia operations.

A recurrent hernia which is not treated early may progress in size to the point where, at the second operation, it becomes difficult or impossible to determine where the initial defect was. Little or nothing, then, is learned about the error committed at the first operation. Moreover, if treatment is delayed, there is lengthened disability, some risk of strangulation for the patient, and a greater difficulty for the surgeon in the second repair. On the other hand, patients in whom operation has once failed may not be eager to return. It seems evident, therefore, that all hernia patients should be recalled for examination at regular intervals of a year or less for many years after operation.

Without the data obtained by such examinations, the presentation of new operations and the evaluation of old ones is unconvincing; yet a study of final results, based on medical examinations at a significant interval after operation, is a comparatively rare finding in the large literature on this subject. The difficulty which is responsible for this situation will appear in the present study. Suffice it to say that a follow-up period of even three years is likely to include less than 80 per cent of recurrences (Table IV), and fewer cases can be followed as the years go by. The

present work was undertaken to discover what has occurred to the patients operated upon in this hospital, three to seven and one-half years afterward, and to analyze possible causes of failure in those cases with complications or recurrence.

#### Method of Follow-up

All patients operated on in this hospital for inguinal or femoral hernia between January 1, 1940, and June 30, 1944, are included in the study. The total number of patients was 264, with thirty of these having two operations. The follow-up was not complete. Altogether, 52 per cent of all the patients were followed by examination and an additional 11 per cent by letter. A further 9 per cent of patients were deceased at the time of study. Most of the examinations were done in the hospital, but in some cases the patient's doctor performed the examination elsewhere and sent in a report. In thirty-eight cases the patient was followed only by letter at first, and subsequently was seen for examination; the findings corresponded except in one case in which the patient was unaware of a recurrence.

A true recurrence is one in which the hernia reappears exactly as it was before operation, and is probably uncommon. A recurrent hernia is generally considered one which appears in the same inguinal-femoral region as that originally operated on,<sup>21</sup> and the broader definition is used in this study.

#### Results

*Tables I and II.*—The types of hernia encountered and the various operations used are noted in Table I. The relative incidence of bilocular hernias—direct-indirect inguinal (9 per cent) and inguinal-femoral (1 per cent)—is lower than would be expected. Usually, well over half of all hernias in patients over the age of thirty-five are bilocular;<sup>7,11,18</sup> 62 per cent of the patients in this series were over thirty-five. The high recurrence rates in those hernias diagnosed simple direct (31 per cent) or femoral (25 per cent) may therefore be in part due to overlooking of another locule. Some of them reappeared soon after operation.

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TABLE I. RELATIVE FREQUENCY OF TYPES OF HERNIA AND OF TYPES OF OPERATION USED IN 294 HERNIAS

Also shows the number of times each operation was used for each type of hernia.

	Bassini	Halsted	Ferguson	*	Others	Total	%
Indirect inguinal	111	40	30		17	198	68
Direct inguinal	7	14	2		4	27	9
Direct-indirect	5	10	1		2	18	6
Femoral		1		25	3	29	10
Inguinal-femoral					3	3	1
Recurrent	3	7	1	3	5	19	6
Total	126	72	34	28	34	294	100
%	43	24	12	9	12		100

\*The inguinal ligament was sutured to Cooper's ligament or to the pectineal fascia.

Three of the femoral hernias reappeared as inguinal, but this may have been due to displacement of the inguinal ligament,<sup>10</sup> which was used in the repair, rather than to overlooking another locule. Similarly, two patients developed femoral hernias after repair of large indirect inguinal hernias in which the inguinal ligament was utilized. One of these patients had the first operation ten years before, and only the second, after which there has been no recurrence, is included in this series. As noted in Table II, the recurrence rates in those hernias which were diagnosed bilocular were comparatively low.

The over-all recurrence rate was 10.8 per cent.

Table III.—Recurrences for each type of operation are listed in this table. The procedures designated Halsted,<sup>8,9</sup> Bassini,<sup>2</sup> and Ferguson<sup>6</sup> are those described under these names in textbooks of surgery<sup>3,12</sup> to avoid confusion with other operations described by these authors. The Halsted second operation for hernia is quite similar to the Ferguson and is listed as the latter in these tables. There were a number of other operations, including those of Andrews,<sup>1</sup> Downes,<sup>4</sup> Lotheissen<sup>13</sup> and Wangenstein,<sup>20</sup> each of which was performed in only one or a few cases in this series. These are grouped with the few cases in which the operative record was incomplete, as the numbers were too small to allow any conclusions.

It would be misleading in any case to interpret Table III as showing superiority of one operation over another; recurrences for each type of operation occurred predominantly with certain types of hernia and not with others. The Halsted operation was used more commonly than other

TABLE II. RECURRENCE RATES IN THE 186 HERNIAS FOLLOWED, IN RELATION TO TYPE OF HERNIA

	Operations	Recurrences	%
Indirect inguinal	129	8	6
Direct inguinal	16	5	31
Direct-indirect	9	1	11
Femoral	16	4	25
Inguinal-femoral	3	0	0
Recurrent	13	2	15
Total	186	20	10.8

TABLE III. RECURRENCE RATES IN THE 186 HERNIAS FOLLOWED, IN RELATION TO TYPE OF OPERATION

	Operations	Recurrences	%
Bassini	85	5	6
Halsted	51	5	10
Ferguson	15	1	7
Others	22	4	31
Total	186	20	10.8

\*The inguinal ligament was sutured to Cooper's ligament or to the pectineal fascia.

operations for direct and recurrent hernias, which have high recurrence rates with any type of operation. However, it is apparent that suturing of the inguinal ligament to Cooper's ligament or to the adjacent pectineal fascia has been an unsatisfactory method for repairing femoral hernias in this series.

Recurrences were listed for individual surgeons including ten staff members and thirty-three interns and residents. Although the experienced surgeons fared no better than the novices in the final figures, it should be remembered that the former group took care of nearly all the difficult cases.

Dr. Wangenstein, who had one recurrence in twenty-three followed cases, employed Halsted's operations I and II for the most part. He believes that, when properly performed, they give the best results. His own cases bear this out, in contrast to the findings in the rest of the series.

Altogether, forty-two patients in the series had bilateral hernias. Of these, nineteen (45 per cent) stated that the hernias had appeared on both sides at the same time. In the remaining twenty-three patients the contralateral hernia appeared at an interval of from one to thirty-two years, averaging eleven years, after the first. The incidence of a contra-lateral hernia in a patient who had recently developed one hernia was therefore 9.4 per cent in this series. If the patients

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were followed longer, the incidence would doubtless be higher.

Of the patients who were followed, there were twenty who had bilateral operations and nine others who had bilateral hernias, only one of which was repaired during the period of study. In these twenty-nine patients, who had forty-nine operations, there were nine recurrences, a rate of 18 per cent. In the remaining 137 patients with unilateral hernias, there were eleven recurrences (8 per cent). The probability of this difference occurring by chance is such that its significance is doubtful ( $p=0.05$ ).

Of the twenty patients followed, in whom bilateral hernias were repaired, nine had them both operated on at the same time, and four of these eighteen hernias recurred, a rate of 22 per cent. In the remaining eleven cases where the two operations were done at different times, there were four recurrences, a rate of 18 per cent. The difference is insignificant.

The average time of recurrence was two years after operation.

It would be of interest to know the exact types of hernia which appeared as recurrences, in relation to the original hernias, in all patients. Information on this point is meager, however. In many instances the original diagnosis is obscure, the patient having been operated on elsewhere many years before. In others, the recurrence was so large that the original defect could not be precisely located even at operation.

It may be assumed that many early recurrences are due to failure to find accessory locules or to extirpate the sac completely. The mechanism of late recurrences is not well explained. One of our patients, for example, entered the navy after his operation and was examined at frequent intervals until his discharge four years later. Then, while a student, he noted the recurrence at five years.

*Table IV.*—The purpose of presenting this table is to illustrate the very considerable difference in recurrence rates depending on the length of the follow-up period. The first column shows the cases in the present series as they were on January 1, 1945, at which time all cases would have been followed at least six months, and some up to five years, after operation. The over-all recurrence rate at that time would have been 4.3 per cent, with 50 per cent of recurrences taking

TABLE IV. RELATIVE INCIDENCE OF RECURRENCES AT VARIOUS INTERVALS AFTER OPERATION, AS MODIFIED BY LENGTH OF FOLLOW-UP PERIOD

Time after operation	Present series as of Jan. 1, 1945 (Fol. 6 mo.-5 yr.)		Present series on July 1, 1947 (Fol. 3-7 1/2 yr.)		13* of 19 cases, recurrent hernia (Table I)	
	Recurrences	%	Recurrences	%	Recurrences	%
0-6 months	4	50	4	20	2	15
6 months-3 years	4	50	12	60	5	39
3-7 1/2 years			4	20	3	23
7 1/2-20 years					3	23
Total	8 (4.3%)	100	20 (10.8%)	100	13	100

\*Time of recurrence not known in 6 cases.

place within six months and all the rest within three years.

The second column shows the present status of the same cases, now followed from three to seven and a half years after operation. Only 20 per cent of recurrences now appear to take place within six months, and 20 per cent occurred after three years. The general recurrence rate has more than doubled.

In the third column the patients represented are a different group, namely those with recurrent hernias already present who came for operation during the period of study. These recurrences took place as long as twenty years after operation. This random sample of recurrent hernias, which happen to have been followed for a longer period than that of this study, indicates further the trend noted in the first two columns. Only 54 per cent of the cases in Column 3 took place within three years.

Two factors bearing on the incidence of recurrence are age of the patient and the presence of chronic cough. The average age of patients with recurrence is eleven years higher than that of the other, and this is statistically significant ( $p=0.014$ ). Of five patients with persistent cough at the time of operation, four had recurrences, and this item is evidently important.

*Table V.*—The incidence of swelling of cord or testicle, including both hematomas and edema, was not associated with any one type of operation; after Bassini repairs it occurred in 11 per cent, after Halsted operations in 7 per cent, and after Ferguson operations in 12 per cent. One of the recurrences had this complication. Two of twelve cases subsequently examined had atrophy of the testicle on the affected side.

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TABLE V. POSTOPERATIVE COMPLICATIONS AND MORTALITY FOR THE ENTIRE SERIES  
278 operations at which 294 hernias were operated on.

Complications	Hernias	%
Swelling of cord or testicle	23	8
Wound infection	21	7
	Operations	%
Thrombophlebitis	4	1
Pneumonia	5	2
Decubitus ulcer	3	1
Atelectasia	1	0.4

Mortality: 8 postoperative hospital deaths, or 2.9%.

- | Age   | Cause of death   |
|-------|--|
| 1. 60 | Pulmonary embolism.  |
| 2. 70 | Parotitis.   |
| 3. 57 | Wound infection, sepsis, diabetes.                                     |
| 4. 73 | Acute heart failure, 3 days after operation.                           |
| 5. 78 | Cerebral hemorrhage (heparin for thrombophlebitis), diabetes.          |
| 6. 81 | Dissecting aneurysm.   |
| 7. 51 | Acute liver failure.   |
| 8. 67 | Peritonitis. Incarceration of hernia; repair 7 days after gastrectomy. |

Wound infection was also present in only one recurrence, and was serious in only two cases.

The other complications, as well as the causes of mortality, are not peculiar to hernia operations. The average age of patients dying in the postoperative period was sixty-seven years, compared to forty-five years, the average age of all patients in the series.

## Comment

Numerous follow-up studies beginning at six months after hernia operations have been reported. In the present series, 20 per cent of recurrences took place within six months. Fallis<sup>5</sup> found only 22 per cent occurring within six months and 48 per cent within three years. In a longer follow-up, on the other hand, of from six months to twenty-nine years, Taylor was able to find only 37 per cent of the patients operated on. Most of these were followed five years or less, and over half of them only by letter. Results are better where a surgeon follows all his own patients, living in the same locality, though the numbers are small. Veterans' hospitals have provided extensive follow-up studies,<sup>7,18</sup> but the patients are a selected group.

It is inevitable that some patients should be lost: 9 per cent of the present series were deceased; but the failure to follow other patients was partly due, as indicated by comments of many patients, to lack of understanding on their part that examination was advisable. Surgeons, confident in their success, had frequently advised the patient that no return visit was necessary.

Most of the statistics in this and other papers on the subject should be qualified by the obvious fact that any of the patients still living and apparently cured may yet have recurrences. The discrepancies in reported results of various operations for hernia are partly explained by this observation, as illustrated in Table IV. Similarly, the percentage of recurrences taking place within six months after operation becomes smaller as the period of follow-up is increased. Those authors presenting a short follow-up always have a high percentage of recurrences taking place within a short time, which mistakenly gives the impression that a longer study is unnecessary.

To obtain the correct incidence of recurrence and relative time of recurrence would require that all patients in the series be followed at regular intervals until they died or developed recurrence. In a more ideal study than the present one, this requirement would be complemented by more thorough diagnoses, especially by accurate descriptions of recurrences in an early stage, and by planned variations in operative procedure.

From the present work, however, we may learn that excellent results can be obtained by an experienced surgeon using a time-tried operation. Much improvement can be expected, therefore, from a study of avoidable errors contributing to recurrence with established methods, in contrast to the emphasis often placed on new types of operation. Many writers<sup>4,10,11,15,18</sup> have pointed out the advisability of opening the peritoneum at the internal ring and making a thorough digital exploration for accessory locules, regardless of the type of hernia diagnosed before operation. Operative records in the present series do not always mention such exploration. Some of the femoral hernias were repaired entirely from below the inguinal ligament, a method which restricts examination of the inguinal region.

Finally, it may be remarked that the problems of femoral hernia, femoral recurrence of inguinal hernia, and late recurrences of all types may not be solved even by the best performance of the classical operations. It is possible that certain procedures, not used in the present series, involving more radical reconstruction of the inguinal and femoral regions without suturing the inguinal ligament,<sup>13,16</sup> or the use of autogenous fascial sutures,<sup>14</sup> would offer better protection against these types of recurrence. Of two different operations having the same recurrence rates early



in the follow-up, one might prove more effective against late recurrences. Information on this matter is not at present available.

### Summary

Two hundred and sixty-four patients, having undergone 294 operations, formed the basis for this study. Of these, 63 per cent were followed from three to seven and one-half years after operation.

The over-all recurrence rate was 10.4 per cent. Rates were highest in direct inguinal (31 per cent) and femoral (25 per cent) hernias.

The operation giving the highest recurrence rate (31 per cent) was that of suturing the inguinal ligament to Cooper's ligament or to the pectineal fascia. This was used for femoral and recurrent hernias.

The more experienced surgeons, though dealing mainly with difficult cases, had as a group the same recurrence rate as interns and residents.

A contralateral hernia developed at an appreciable interval, averaging eleven years, after the first one in 9.4 per cent of the patients. Bilateral hernias appeared at about the same time in 7 per cent of patients. The recurrence rate for bilateral hernias was 18 per cent, compared with 8 per cent for unilateral hernias. The recurrence rate for bilateral hernias repaired at the same time did not differ significantly from that when the two operations were done at different times.

The present series of cases, if reported as a six-month to five-year follow-up, would have had 4.3 per cent recurrences.

Other factors contributing to recurrences were older age, and persistent cough at the time of operation.

Swelling of the cord or testicle developed after 8 per cent of herniorrhaphies. It was not associated particularly with any one of the operations used. Testicular atrophy occurred in 17 per cent of the affected cases.

The mortality was 2.9 per cent. Causes of death were unrelated to the hernia operations as such. The average age of patients dying after operation was sixty-seven years, compared to forty-five years for the whole series.

### Conclusions

1. Thorough exploration of every inguinal and femoral region should be carried out when operating for hernia in patients over thirty-five, regard-

less of the type of hernia diagnosed before operation.

2. Suturing the inguinal ligament to Cooper's ligament or to the pectineal fascia for the repair of femoral or recurrent hernias has been an unsatisfactory operation in this series.

3. Surgical experience improves results in hernia repairs. Excellent results can be obtained by practiced surgeons using the standard types of operation.

4. About 10 per cent of patients with a single hernia may expect to develop a contralateral hernia.

5. The recurrence rate was not increased by the performance of bilateral repair at the same operation.

6. Length of follow-up period, even up to twenty years, has an important bearing on over-all recurrence rates and on the apparent percentage of recurrences which take place early.

7. Patients who are in the upper age groups at the time of operation have higher recurrence rates.

8. Chronic cough at the time of operation predisposes to recurrence.

9. Appreciable mortality after herniorrhaphy appears in older patients, though unrelated to the hernia operation as such.

10. More adequate information than is contained in this and in similar studies, if it is to be obtained, will require that all patients operated on for hernia be persuaded to report regularly for follow-up examinations.

11. Many early recurrences can be eliminated by avoidance of well-known errors. The problems of late recurrences, femoral hernia, and femoral recurrence of inguinal hernia require more study.

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## DIAGNOSIS AND TREATMENT OF COMMON FORMS OF RESPIRATORY ALLERGY

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WHEN ONE considers that respiratory allergy in both the seasonal and nonseasonal types is the most common form of allergy and that approximately 60 per cent are cases of allergic rhinitis, the true significance of respiratory allergy can be realized. The incidence of nasal allergy in the general population is about 3.5 per cent, which according to the present estimated population of the United States would constitute over five million individuals. There are no accurate statistics on the occurrence of bronchial asthma due to allergy. According to Army statistics, there were twelve asthmatics per thousand among the veterans receiving compensation, whereas two veterans per thousand had been previously eliminated before induction. About 1 per cent in this entire age group of eighteen to thirty-five suffered from asthma of the allergic type.

The common forms of respiratory allergy are, in the order of their frequency, seasonal hay fever or pollinosis, perennial allergic rhinitis or hyper-esthethic rhinitis, bronchial asthma and allergic bronchitis. Any of these clinical disorders with common features of heredity, common periodicity, temporary disappearance, and eosinophilia should arouse the suspicion of their being allergic in origin.

The diagnosis of respiratory allergy is based first upon a thorough and painstaking history. In seasonal hay fever the symptoms should coincide with the common offending pollen antigens in the atmosphere in sufficient concentrations in the patient's environment. All practical textbooks on allergy contain charts or maps showing the geographical distribution of various species of offending pollens and at what time of the year they are of clinical significance in any particular locality. The pollinating season in Minnesota is relatively clearly defined. There are sixteen pollen groups in Minnesota causing hay fever. The trees of clinical significance blossom from the middle of April to the last of May. The grass pollens bloom from June until July and again the latter part of August and September. The weeds, such

as pigweed, Russian thistle and the sages, prevail in the middle of July, but the ragweeds not before the second week in August, and continue until frost.

Skin tests with these sixteen pollen groups should be done by scratch testing, using the powdered pollen extracts or a 5 per cent glycerin extract. A reaction consisting of a wheal, particularly with pseudopods and with a zone of erythema, can be determined as positive in various degrees. Stock treatment mixtures containing these pollens in proper proportion for various sections of the country are furnished now by the various biological houses. Otherwise, a special treatment mixture may be made consisting only of the pollens to which the patient reacted in proper proportion. Patients sensitive to the common offending pollens may not react to skin tests, so that other methods involving the use of the mucous membrane or conjunctiva, or direct exposure to the suspected offender may have to be used. Sometimes the intracutaneous test on the arm will reveal an offender when a scratch test is negative. The back should never be used for intracutaneous testing with pollen extracts. Passive transfer or indirect skin testing is sometimes necessary when the skin is unsuitable for direct testing. In the perennial nasal allergies a careful history of the patient's occupation and home environment is essential. This will determine whether house dust and its various components, the common air molds, or industrial dusts are the chief offenders. Scratch or intracutaneous tests are then done with those inhalant allergens to which the patient is exposed in appreciable amounts.

### Diagnosis of Nasal Allergy

The making of an accurate diagnosis of allergy of the nose and paranasal sinuses requires careful consideration and correlation of the following points:

*Symptoms.*—The typical symptoms of nasal allergy are similar but in varying degrees, whether seasonal or perennial. They consist of sneezing, itching, nasal discharge and obstruction. Atypical

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cases, however, are characterized by stuffiness and postnasal discharge with little or no sneezing. These can be easily overlooked. Frequent recurring colds, particularly in children, must be differentiated from allergy.

*Nasal Changes.*—Although the typical allergic mucosa is characterized by pallor, boggy, and sometimes edema or polyposis, there are many instances in which the mucosa appears normal or somewhat reddened.

*Cytology of the Secretions.*—Nasal secretions and, when available, sinus secretions should be stained and examined microscopically for eosinophiles, neutrophils or both. The cytologic picture is frequently the most important factor in diagnosis. It must be emphasized that the common cold is an ever-present complication, and the cytologic changes are the most important guide in its recognition. A nasal smear revealing more than 10 per cent eosinophiles, which appear in clumps, indicates a nasal allergy.

It is sometimes necessary to make other tests, as previously mentioned, such as the mucous membrane test or the ophthalmic test or direct exposure to the suspected offender.

*X-Ray of the Sinuses.*—Various degrees of cloudiness are the rule rather than the exception in allergic sinuses. Changes may be of short duration and transitory. A cloudy sinus, therefore, does not always indicate infection. When the history of allergy is present and there is a bilateral clouding, the chances favor the diagnosis of an allergic condition, whereas a unilateral clouding may indicate an infection but not necessarily so. X-Ray findings should be correlated with the cytologic picture and bacteriologic cultures.

*Bacteriology.*—To secure reliable nasal cultures and avoid contamination, sinus cultures must be taken under strict aseptic precautions. The findings should be correlated with the cytology, and acute, subacute and chronic complicating infections should be carefully evaluated.

*Histopathology.*—All tissues removed from the nose and paranasal sinuses should be examined routinely, and the findings correlated with all the diagnostic factors already enumerated.

Time will not permit the enumeration of the

other associated manifestations in this field of respiratory allergy, such as: (1) involvement of the external ear, eustachian tube, middle ear, cochlea and labyrinth, resulting in deafness, tinnitus and dizziness; (2) recurring swellings of the parotid and submaxillary glands; (3) involvement of the larynx and esophagus; (4) allergy of the eye, and (5) allergic headache.

Nasal allergy may be associated with gastrointestinal allergy, bronchial asthma, allergic bronchitis, skin allergy—urticaria, eczema, angioneurotic edema, purpura, contact dermatitis—urogenital allergy and even serum disease. In the observation of children with frequent recurring colds and bronchitis, the otolaryngologist and pediatrician must determine whether allergy or infection or both are the cause of symptoms. Among the allergic patients in this group too many tonsillectomies are unnecessarily performed.

Clein has recently shown that when allergic symptoms are properly treated in children who require tonsil and adenoid removal, the incidence of regrowth of lymphoid tissue in the tonsil fossae is negligible—3 per cent compared to 27 per cent in undiagnosed, untreated, allergic children.

Persistent bronchitis in children, not infrequently in the absence of nasal symptoms, is of allergic origin and often precedes the development of asthma. Chronic disease of the paranasal sinuses in children is often allergic and not primarily caused by infection.

In adults nasal stuffiness and postnasal discharge even in the absence of sneezing may be allergic in origin. Although a submucous resection is sometimes necessary in these cases, it may fail to give adequate relief. Allergic management should always be tried before resorting to the use of the cautery or escharotics.

### Treatment

By and large, prevention is the ideal treatment of the various forms of allergy. In order to obtain this objective, specific or immunologic measures should be instituted based upon all the investigative methods at hand, as well as a detailed history taking, cutaneous tests, and clinical trials with suspected excitants. Preventive measures should be taken in the preclinical, as well as the clinical, phase of allergy. A preclinical phase of allergy occurs usually before the age of ten years and such an individual may possess only a latent or potential capacity to become sensitized. This

can only be suspected and not demonstrated, based upon the familial allergies and a demonstration of positive skin reactions before symptoms are manifest. Where the child has not shown allergic respiratory symptoms and there is a strong family history of allergy accompanied by relatively strong skin test reactions to inhalants and foods, every effort should be made to remove the known cause or causes by rearrangement of the environment or the patient's diet, or if there is a focus of infection, by surgical removal.

Crowe and Ward's method of irradiation of the hyperplastic and infected tissue of the nasopharynx may be helpful. In the control of nasal allergies, practical avoidance measures and immunization measures frequently result in 80 per cent relief. When infection is present, the antibiotic agents may be tried according to the type of infection present, but it must be remembered that these antibiotics may themselves sensitize the patient and cause distressing symptoms. The antihistaminic drugs, owing to their local and cerebral sedative action, prevent or inhibit clinical symptoms by blocking or lessening the effects of the offending histamine type of substances. They do not, however, block the offender from continuing to invade the sensitized mucous membranes, and patients receiving antihistaminic therapy alone for upper respiratory allergy without concomitant immunization measures may later develop asthma. Unless the patient is receiving simultaneous immunization, the shock organ merely changes from the upper to the lower respiratory tract. The most beneficial effects are obtained when used in conjunction with immunization measures, by preventing systemic reactions from high doses of pollen or the inhalant extracts by administering 25 to 50 mg. about a half hour before the antigen injection.

#### Diagnosis of Bronchial Asthma of the Allergic Type

It is usually relatively easy to diagnose bronchial asthma. The history is most important and frequently sufficient. No other disease simulates recurrent attacks of bronchial asthma, which is characterized by dyspnea, wheezing, orthopnea and coughing with more or less complete freedom from symptoms between paroxysms. Where there are little or no intermissions as in chronic asthma, there may be some doubt as to its allergic origin. The presence of generalized wheezing and pro-

longed expiration, eosinophilia in the blood and/or sputum, the presence of other allergic conditions in the same patient or the presence of allergy in the immediate family, the demonstration of relief from epinephrine, the roentgen findings of increased hilus shadows and a depressed diaphragm with a poor excursion, and the presence of positive skin tests confirmed by clinical tests usually substantiate the diagnosis, although any one of these alone may occur in nonallergic cases. In the chronic asthmatics the presence of emphysema and chronic bronchitis is common.

The specific diagnosis depends mainly on a careful history with questions, particularly referable to orthopnea, wheezing, coughing and expectoration during the attacks. When a cough is present with or without asthmatic spells, there may be an associated complication, such as chronic bronchitis or bronchiectasis, or some chronic infection such as pulmonary tuberculosis. The expectoration in uncomplicated asthma is usually colorless, scanty, and present only toward the end of the attacks. If there is an excessive amount of early morning sputum, particularly when mucopurulent, bronchiectasis should be suspected; an iodized oil roentgen film may confirm the diagnosis. Various types of bronchitis may have continuous expectoration of purulent sputum. Slight hemoptysis may occur in severe asthma with hard coughing. Large amounts of blood should cause one to suspect bronchiectasis or pulmonary tuberculosis, or both. Fever is commonly present in asthma in children and may also occur in adults, especially if there is an intercurrent infection. Loss of weight does not usually occur except in the presence of chronic asthma, such as status asthmaticus with inability to eat. Loss of weight in patients with a mild asthma may be the result of carcinoma or pulmonary tuberculosis. The presence of pain in severe attacks is frequently due to the use of accessory muscles of the chest and does not necessarily mean heart disease or pleurisy.

Cohen described a type of allergic asthma in children commonly diagnosed as pneumonia. Children with asthma frequently retain the mucous secretions which become inspissated into tenacious plugs as a result of dehydration from the loss of fluid in vomitus or through the expired air. Children frequently have nausea and vomiting with their attacks and get relief when these mucous plugs are coughed up. There may be various grades of atelectasis present in this type. Poor



drainage may result in a low grade pneumonitis. In these cases impaired resonance, distant breath sounds, bronchial breathing, and moist and dry râles may be heard accompanied by a temperature of 103° to 104° F. The roentgenogram reveals transient areas of atelectasis and pneumonitis. A baby with allergic asthma may manifest very little labored breathing. A simple way of eliciting wheezing or sibilant râles on expiration is to have the child try to blow out a candle.

Cardiac asthma is characterized by the following: attacks are very few; there is pulmonary edema; the onset is usually after forty years of age; there is associated hypertension, coronary disease, aortic regurgitation, or chronic nephritis; eosinophilia of the blood and sputum are absent; there is no prolonged expiration, and the moist râles are located usually at the lung bases with some wheezing; there is cold, clammy skin; the heart is dilated and the pulse is often thready and irregular; epinephrine produces ill effects; skin tests are negative; the circulation time is usually prolonged. Cardiac asthma is also sometimes confused with other cardiac conditions such as chronic decompensation. Hysterical dyspnea may sometimes resemble serious heart failure.

Bronchial asthma on the other hand is characterized by the following: there is a history of previous attacks; there is obstruction in the lower air passages; the onset is early in life; there is allergy in the patient and family; eosinophilia is present in the blood and sputum; there is wheezing, and prolonged expiration all over both lungs; there is warm perspiration; the heart is usually small; the pulse is good; the fear complex is not as great as in heart failure; morphine is dangerous and epinephrine usually gives some relief; skin tests are positive; elimination of cause gives relief, sometimes complete; the circulation time is normal.

### Treatment

The most annoying form of respiratory allergy which disturbs the general practitioner or the chest specialist is bronchial asthma, particularly in the acute form or status asthmaticus. When this is present, symptoms are treated first, and following relief the investigation of causative factors is commenced. The patient usually is very apprehensive and should be reassured that patients rarely die of an acute attack of asthma. Status asthmaticus is considered to exist when all the

usual orthodox forms of therapy have failed. Unlike chronic intractable asthma, it is an acute condition which is usually reversible.

The older the patient with bronchial asthma, the greater the chance of both extrinsic or intrinsic infective factors being present. In the chronic infective type, the use of antibiotics sometimes are startlingly beneficial. Aerosolization may be used with the antibiotics alone or preferably combined with concentrated epinephrine or Isuprel, with the flow meter set between 4 and 5 liters per minute on the oxygen tank when oxygen is used as a conveyor. Higher pressures with the proper nebulizer such as the DeVilbiss No. 40 may also be used. Foot and hand pumps generating compressed air are now available and less expensive. In any event the nebulized particles should be so fine as to be practically invisible. The patient should be told to breathe in gently and not forcibly, with the mouth wide open, while the nebulization is taking place, and to hold the breath if possible momentarily and not to exhale forcibly. By this method, the finer particles penetrate the lower respiratory tract. Ten per cent glycerin, added to the aerosolization mixture helps to stabilize the particles. For an aerosol solution, the author obtains very satisfactory results with a combination of daily inhalations, from five to seven days in succession, of 25,000 to 50,000 units of crystalline penicillin in isotonic saline solution to which has been added 0.1 c.c. of concentrated epinephrine or Isuprel and 0.1 c.c. of glycerite of peroxide. Instead of penicillin, a combination of streptomycin and tyrothricin (1:2,000 dilution) has not produced any toxic reaction. Bacitracin has also been employed. Also for aerosol therapy other remedies such as a 5 per cent solution of sodium sulfathiazole may be used.

In the treatment of status asthmaticus, sedation and hydration are paramount. For sedation, a retention enema of 2 to 3 drams of paraldehyde in 1 ounce of warm water, introduced high into the rectum by means of a male catheter attached to a closed syringe, results in a very satisfactory sedation and does not cause the irritation produced by ether in olive oil. Also 100 mg. of Demerol, to be used only in acute cases of asthma, may be very helpful. Hydration consists of an intravenous injection by the slow drip method of a liter of 5 per cent (isotonic) dextrose, or in some cases, 500 c.c. of 10 per cent dextrose in distilled water. Dextrose in greater concentra-

tions up to 50 per cent has repeatedly been advocated. It is more desirable to use 5 per cent dextrose which is isotonic, and furnishes both water and calories. This solution should also contain  $3\frac{3}{4}$  grains (10 c.c. ampoule) of aminophyllin and 0.5 to 1.0 c.c. of 1:1000 solution of epinephrine and should be given at the rate of 60 to 80 drops per minute. Distilled water is preferred to isotonic sodium chloride solution since there has been ample evidence furnished that sodium chloride will make asthma worse. This mixture may again be administered in six to eight hours if necessary. One should not follow dextrose with insulin. Some form of vitamin B complex and vitamin C may be given in the saline or dextrose solution or intramuscularly, especially in those patients who are very weak from inability to take proper nourishment. If necessary to maintain nutrition, blood plasma or a blood transfusion of 250 to 500 c.c. may be necessary. Oxygen or preferably oxygen and helium may be administered by means of a tent or mask or nasal catheter.

In the treatment of bronchial asthma of the less acute type, each patient presents an individual problem. There is no treatment that is always best nor any that must always be used first. The management of these patients depends upon a careful examination and continued observation of the patient. A thorough general examination should be made of all the domains of the body when determining influencing factors. When possible, there should be a change of environment, preferably to a hospital and in an allergen-free room. When treating a patient at home every measure should be taken to make the room as allergen free as possible by using allergen-proof bedding or encasings. Any articles which may collect dust, such as drapes and rugs should be eliminated. There is now on the market a preparation known as "Dust-Seal" which when applied to specific surfaces (floors and primarily fabrics, such as carpets and upholstered furniture and blankets) imprisons or seals the particular matter known to allergists as house dusts, preventing their dissemination and contamination of the air. The dust particles are immobilized by this procedure, and the preparation is harmless to fabrics.

For immediate relief the sympathomimetic amines, epinephrine or ephedrine, or a combination of epinephrine and ephedrine, as well as the various epinephrine-like (synthetic) group such as ephedronin, neosynephrine, propadrine, Orthoxine

and Isuprel are used. In this group also is included tyramine and amphetamine (benzedrine sulfate). The group of xanthines which have a local action on smooth muscle without nerve transmission and which are very beneficial in a large number of cases are theophylline-ethylenediamine (aminophyllin); theophyllin (theocine); theobromine, and theocalcin. These xanthines are frequently combined with one of the sympathomimetic amines and one of the barbiturates in capsule or tablet form. Where the secretions are scanty, potassium iodide or potassium iodide in combination with apomorphine makes a very effective expectorant as well as a cough sedative. Aminophyllin is best given in concentrated form when treating the acute asthmatic. As a rule,  $3\frac{3}{4}$  grains is first given to determine the patient's toleration;  $7\frac{1}{2}$  grains may then be used. These come prepared in 10 and 20 c.c. ampoules and should be administered slowly intravenously. Precautions should be taken in administering aminophyllin to patients who may have coronary disease. A feeling of warmth or flushing in the face is an indication to administer more slowly. Aminophyllin may also be given in suppository form. This form is particularly useful when continuing the effect of the aminophyllin. The use of aminophyllin will often relieve the epinephrine "fast" state.

As pointed out by Davison, a mixture of epinephrine hydrochloride, 0.5 to 0.8 c.c. with Demerol 50 to 100 mg. and apomorphine hydrochloride, grains 1/120-1/100-1/80-1/60, mixed together in the same syringe and given one-third every ten to fifteen minutes until all is given or until relief is obtained, may be very efficacious.

In relieving nervousness or apprehension when the patient is not sensitive to the barbiturates, injections of sodium phenobarbital are preferable. This drug should be administered in doses of 2 to 5 grains, as often as necessary, if the patient is sensitive to barbiturates, chloral hydrate, chloralhydrate or bromides may be used in appropriate doses orally or by rectum.

In the treatment of acute asthmatics, bronchoscopy has been very effective in a number of cases. By means of this method the removal of mucous plugs may be life saving.

When treating some of the complications of acute or prolonged bronchial asthma particularly where there are signs of heart failure, 5 grains of citrated caffeine may be given orally, or caffeine sodium benzoate, grains  $7\frac{1}{2}$ , by hypodermic

injection, may be tried, or Coramine, 5 c.c. intramuscularly or intravenously as a cardio-respiratory stimulant. Digitalis is used for impending right or left sided cardiac failure, and the dose should be enough to digitalize. It may be necessary to use the Levine tube through the nose to relieve gastric distention. Intestinal distention may be relieved by the use of a salt and soda enema and rectal tube. Pituitrin in small doses may also be given. Some patients respond well to the use of a saline laxative or particularly to a half to one teaspoonful by mouth of heavy magnesium oxide.

Recently, a 5 per cent solution of ethyl alcohol has been recommended intravenously when treating asthmatic paroxysm, but its use is not advocated since it is irritating to the veins, causes some pain, and is unpleasant to most patients. There is no specific indication for its use. Sometimes whiskey in two or three ounces, or a whiskey, combination with aspirin, ten to fifteen grains, has been given when other medication is not available, but one must be sure that the patient is not sensitive to whiskey or to aspirin.

*Roentgen (X-ray) Therapy.*—For some patients with asthma who have not responded to careful allergic management, x-ray therapy has been beneficial, giving temporary relief for a few weeks or months. Marked relief has been obtained in about a fourth of selected cases, and reports of moderate relief in the hands of various roentgenologists ranged from 16 to 75 per cent.

*Treatment by Hyperpyrexia.*—It has been a common observation that asthmatics may show temporary improvement during or following fever resulting from typhoid or malaria, or even following an infection such as a large carbuncle. The best method is that described by Stoesser, treating asthmatic children in a room with heat and moisture.

*Vaccine Therapy.*—Vaccine therapy should be used with caution, especially in infective asthma, since our immunologic and bacteriologic knowledge is still vague. Skin tests with vaccines are of little or no value. The most favorable results are noted in patients who obtain relief with very small doses gradually increased weekly to a desired maximum followed indefinitely by this dose every two to four weeks. Overdosage is dan-

gerous. The results are sometimes very gratifying but as a rule not dependable. The best role of vaccine therapy is the prevention of recurrences after removal of focal infection.

In cases of infective rhinitis associated with nasal allergy, vaccine therapy with stock vaccines or autogenous vaccines from cultures of the sinus, nasal or bronchial secretions may be tried, and the procedures are the same as described for infective asthma.

*Nonspecific Therapy.*—Such forms of therapy as injection of milk, liver or spleen extract, stock bacterial vaccines or other foreign protein, gold and other substitutes, autohemotherapy, or autogenous urinary proteose all have their advocates, with little or no proven or substantiated beneficial results.

*Surgical Treatment.*—The various surgical procedures consist of sympathetic block, extirpation of sympathetic bronchial ganglia and resection of the posterior pulmonary plexus. The surgical treatment of intractable bronchial asthma was initiated by Kümmell in 1923, who performed a unilateral cervical sympathectomy and removed a portion of the stellate ganglion. Leriche and Fontaine later advocated stellate ganglionectomy only. Various modifications of the operation have been developed, mostly in the European clinics. In this country, Rienhoff and Gay reported their results with bilateral resection of the pulmonary plexus with gratifying results.

Miscall and Rovenstine have more recently developed a more rational procedure in the surgical treatment of bronchial asthma. They stress the importance of differentiating the two types of asthma—the one with definite allergic sensitivity to which surgery offers little and which is best treated by hyposensitization, and the other in which there is no demonstrable sensitivity to foreign protein and where afferent stimuli produce an irritation as a result of recurrent or chronic infection of the respiratory tract. Their procedure is based upon the belief of numerous authorities on the subject, that in many asthmatics bronchial asthma is a reflex mechanism resulting from stimuli arising in an irritated focus in the respiratory tract. Impulses are transmitted over the afferent or sympathetic fibres to the central nervous system where broncho-constrictor impulses commence and return over efferent or parasympathetic



fibres to the bronchioles. These authors suggest that a novacaine block of the stellate and upper four thoracic ganglia is a definite diagnostic procedure in determining the role which the sympathetic system plays. They caution against the use of barbiturates or morphine before a novocaine block since the former produces bronchial constriction, and the latter depression of the respiratory center. Scopolamine may be used, however. If a patient is benefited by a unilateral cervicodorsal sympathetic block with novocaine, it can be followed by alcohol. Time will not permit describing the other surgical procedures.

When preventing recurrence of attacks, one must endeavor to give the patient the benefit of the following: (1) adequate treatment by diet and hyperimmunization and avoidance of overwhelming amounts of allergens; (2) prevention or treatment of infection; (3) relief of psychosomatic factors by proper training; (4) endocrine treatment when indicated, and (5) avoidance of physical and chemical precipitating factors as much as possible.

Finally, it may be proper to mention certain precautions which should be used in the treatment of bronchial asthma. One should never use morphine and never overtreat with any sedative drugs. When a patient requires 0.5 c.c. subcutaneously of epinephrine every two hours, he is becoming epinephrine "fast" and is not obtaining the physiologic effects of the drug but the toxic effects, which may be very harmful. The use of too large doses of aminophyllin is contraindicated, and it should never be administered too fast intravenously, especially in patients with coronary disease! Since patients are frequently allergic to many drugs, one should first determine whether the patient is sensitive to the drug to be administered. One should not use prostigmine for distention, and never use soap enemata, since the patient may be sensitive to the materials in the soap.

#### Psychosomatic Factors

In conclusion, owing to the increasing evidence that psychosomatic factors may play a prominent part in allergic diseases, some comment is probably necessary. Although allergic asthma is due in the large majority of cases to an immunologic reaction, it is obvious that other mechanisms and the variations in immunologic specificity contribute to producing a state of altered reactivity or allergy. Psychodynamics must be included to explain the

changes of neurovascular reactions, either when acting independently or when combining with immunologic reactions. With our knowledge of the role played by allergic factors in the etiology of bronchial asthma, our attention has been diverted from asthma's frequent association with emotional disturbances. Early medical literature frequently mentioned cases where asthmatic attacks seemed to have been directly provoked by sudden and violent emotion. It, therefore, becomes more difficult to evaluate the relation of psychogenic factors to the allergic factor. We must never depreciate the role that allergic factors play in respiratory allergy and in certain cases at least should consider that possibly psychogenic factors may hold a complimentary relationship to the allergic factors. There is no question in the minds of allergists that in order to precipitate the attack, even when exposed to an adequate dose of allergen, it is sometimes necessary to have supplemental emotional disturbances, fatigue, the menstrual cycle, and so forth, as it would appear that emotional conflicts might play a very important role in determining the threshold of sensitivity to the specific antigens. On the other hand, it may be possible that psychologic factors might be effective alone by lowering the patient's threshold of sensitivity to substances present in the patient's environment.

There has been much speculation concerning the physiologic mechanism by means of which emotional conflicts precipitate asthmatic attacks. Violent emotion such as fear, rage, sexual excitement and so forth cause a marked stimulation, just as overexertion or hurry will precipitate an attack. Muscular exertion, intense emotion and hurry all cause increased respiratory stimulation. It is then possible that the asthmatic shows a tendency to respond to increased respiratory stimulation with subsequent attacks. There are also a number of reported incidents which would suggest that an asthmatic attack is initiated when the respiratory system is subject to contradictory and unco-ordinated innovations which may result from abrupt inhibition or an intense emotional upset. On the other hand, there is strong evidence that these emotional disturbances are the effect rather than the cause. Psychotherapy has been helpful in some cases of bronchial asthma, particularly in psychoneurotics with asthma. This type of asthmatic patient obtains considerable relief when

(Continued on Page 714)



## THE SYMPTOMS OF CHOLECYSTITIS

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THE development of the effectiveness of a particular therapeutic procedure often is an expensive and laborious process. While such development may follow many pathways, the following is more or less characteristic of that which has taken place in the evolution of the treatment of cholecystitis. Often certain symptoms are noted to occur concomitantly, and after a period of time these are found to be associated with definite morbid anatomical aberrations. If this association is found to be present consistently in an adequate number of instances, a definite clinical syndrome becomes established. This becomes effected by virtue of statistical association and, likewise, the accuracy is determined by virtue of the pertinency of this association.

If the etiologic factor or factors are not readily apparent, therapeutic procedures often are instituted, being based either on the nature of the symptoms or the pathologic findings or both. Again, the effectiveness of these therapeutic procedures becomes a function of statistical association with amelioration of the symptoms or the underlying lesion. By virtue of the effectiveness of the results obtained, the particular therapeutic procedure becomes an established treatment or is thrown into discard.

Many students of logic would find much to criticise in such an approach at the solution of a problem. However, when a patient is in great distress or his physician is frantically seeking out something that will give relief, systems of logic often are referred to the halls of academic scholasticism. Relief of pain in its bald simplicity is more to be desired than the perfection of pure reason.

Yet, in moments of calm, it may be well for us to consider critically some of the established therapeutic procedures, particularly when some of these procedures are not always associated with complete relief of symptoms.

The operation of cholecystectomy in the treatment of the symptoms of cholecystitis now has become a well-established therapeutic procedure.

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By and large, the results are most satisfactory. Occasionally, however, one may encounter a patient who has a persistence of these symptoms for which such treatment has been instituted, either in their entirety or with some amelioration. In order to understand why this is so, it probably would be advantageous for us to review some of the underlying factors involved in the production of the complaints related to the pathologic processes seen in cholecystitis.

The symptoms generally complained of in cholecystitis are basically those of pain and dyspepsia. The extent and the intensity of these symptoms, however, may vary within wide limits. The digestive disturbances may consist mainly of a fullness after meals, associated with gaseous eructations and bloating, particularly after specific foods. As the symptoms become more severe, nausea and even vomiting may intervene. The digestive disturbances are suggestive of altered gastric motility with an inability of the stomach to empty itself adequately, particularly of swallowed air. As a rule, however, there is no roentgenologic evidence of pyloric obstruction present in such situations.

The pain also varies in degree. It may consist of subcostal soreness, which is aggravated on pressure and sudden motion, to intense excruciating colic. The usual picture is a combination of the two, although episodes of colic may occur in individuals totally lacking in interval symptoms. The colicky pain is located in the region of the gall bladder, although it often is referred to the region of the right shoulder blade. These colicky attacks often are sudden in onset and may last for a few minutes to a few hours. At other times they may persist for a longer period and, as a rule, when they do the gall bladder becomes tender and palpable and generally is associated with evidence of inflammation at such a time. Digestive disturbances become more marked, and there is seen, not infrequently, fever and leukocytosis. As a general rule, the clinical picture seen in biliary colic is the result of smooth muscle spasm or tension, either in the gall bladder or the cystic and common bile ducts. Such spasm

or tension also generally is associated with the presence of a stone. It seems hardly likely then that gall-bladder colic should be considered as being due to the passage of a stone, for, indeed, the picture can be reproduced easily by sudden distention of the gall bladder or the common bile duct without the presence of stone.

Considered in the above light, then, the picture of cholecystitis is best not divided into various categories such as chronic, subacute, and acute. We see it here as a continuum. Whether or not the clinical picture seen in chronic cholecystitis will be associated with exacerbations of biliary colic, depends, as a general rule, upon the presence or absence of spasm of the gall bladder or cystic duct. Whether or not the picture of biliary colic will be carried on into that of acute cholecystitis will depend upon the extent and length of time in which obstruction of the cystic duct is present as well as upon the type of bile distal to the obstruction. Thus, the inflammatory picture in cholecystitis may be mild or may be severe, just as the symptoms may be slight or severe. Fundamentally, however, we are dealing with a single disease process.

Since the days of antiquity, at least some of the symptoms which we have described above have been associated with stones in the gall bladder. The frequency of this association was enough to attach to it statistical significance. It therefore was natural to give the association pertinency and to reason that if the stones were removed the symptoms would be relieved. When laparotomies became safe enough to make them elective procedures, it was natural for the operations of cholecystectomy or cholecystostomy to be developed, and toward the end of the last century the removal of stones with drainage of the gall bladder was being performed by many surgeons. The fact that many people had stones in the gall bladder without symptoms was passed over without serious consideration. Likewise, the fact that a patient could have gall-bladder symptoms with a damaged stoneless gall bladder also was ignored. It was not until the clinical results of a large number of such operations were studied that it was found that this, apparently logical procedure was not the procedure of choice. It was settled statistically.

Shortly after the first cholecystostomy was performed, the gall bladder was removed by Langen-

beck, and the operation of cholecystectomy, therefore, appeared upon the scene. You here in the Twin Cities may well be proud of the fact that the first cholecystectomy performed in this country was done at St. Joseph's Hospital in Saint Paul by Dr. Justus Ohage, the father of one of the members of this surgical society. As time has elapsed and experience has been evaluated, this procedure now, in the great majority of instances, has replaced the operation of cholecystostomy. We thus have reasoned, and again statistically, that it apparently is the gall bladder wall that is responsible for the symptoms under treatment.

In a small number of instances, however, ranging from 5 to 15 per cent, there are people with the classical picture of cholecystitis who, when the gall bladder has been removed, will note that a few or all of their symptoms persist. What shall be our explanation for this, and how shall they be taken care of? It is in an effort to answer this question that it would seem wise for us to examine again this symptomatology and try, if possible, to elicit the cause of the symptoms of cholecystitis in the beginning and why these symptoms are alleviated when the gall bladder is removed.

When we attempt to explain the symptom of pain in the viscera of the upper right abdomen, we find that this is mediated almost entirely through the sympathetic nervous system. Occasionally, one will encounter fibers from the phrenic nerve on the right side that enter into the region of the biliary tract, but these, as a rule, are few in number and posteriorly located. If one stimulates these sympathetic fibers directly, pain is reproduced. If one stimulates these fibers by sudden distention of the gall bladder or sudden distention of the common bile duct, pain is reproduced. If the nerves are sectioned proximal to these areas and these maneuvers repeated, there is no pain. If the greater and lesser splanchnic trunks are sectioned on the right side, pain is not reproduced except in rare instances in which it may be necessary to section some of the fibers on the left side. We may make the statement then, I think, that the sensation of pain as related to biliary tract disease, except where the parietal peritoneum is involved, is a function of the sympathetic nervous system.

Let us now consider the symptoms relating to

dyspepsia and, in particular, how they concern the vagus nerves. The clinical observations of Kocher on cord injuries showed as early as 1896 that the vagi have no pain-carrying fibers from the abdomen (de Takats<sup>2</sup>). Vagal fibers, however, are concerned in the control of gastrointestinal motility. If either the right or the left vagal nerves are stimulated in the neck of a dog, one notes marked contraction of the duodenum with increase in tension within the lumen of the abdomen. If pressures within the lumen of the gall bladder and within the common duct are determined, there also is noted a considerable rise in intracystic and intraductal pressures. When tension within the gall bladder and common bile duct occurs, one should anticipate other evidence of vagal stimulation. Such has been found to be the case in observations on animals made by Schrager and Ivy<sup>8</sup> and by Davis, Hart and Crain,<sup>1</sup> and in the human by McGowan, Butsch and Walters<sup>5</sup> and by others. Besides the pain produced by such a procedure, which would be mediated through the sympathetic system, these observers also noted that there was salivation of the animal, followed by nausea and vomiting. The secretion of saliva, as is well known, is to a considerable extent dependent upon vagal stimulation.

The process of vomiting, however, is a complicated one, and to think of it purely in terms of increased tone around the antral and pyloric portions of the stomach probably is oversimplification to the point of inaccuracy. That such increase in tone, however, may interfere with normal emptying of the stomach is highly probable, and this can be shown to occur with mild vagal stimulation. It thus would be safe to state that severe vagal stimulation can be made to initiate the complicated muscular co-ordination which results in vomiting, although it is quite obvious that vomiting also may be produced through other mechanisms. Where the stimulus is not so great or where the threshold of stimulation of the nerve supply is only slightly lowered, one may anticipate less dramatic effects of such stimulation, which would show itself in abnormal emptying of the stomach, chiefly insofar as swallowed air is concerned.

Both clinical and experimental evidence seem to point to the fact that the symptoms generally encountered in cholecystitis, be they mild or severe, can be explained on the basis of nervous impulses

passing through the sympathetic and parasympathetic nervous systems.

Our next problem is to determine whether or not there is an adequate distribution of these fibers along the course of the bile ducts and the gall bladder to participate in such a function as we have described above.

Many studies have been made on the course and distribution of vagal fibers to the stomach and biliary passages. One of the very good studies was that by Swan as early as 1834, and during the ensuing years numerous other studies relating to gross dissection have been described. There is considerable disagreement, particularly as related to the details of distribution of the smaller fibers, and we therefore must conclude that there is much individual variation in the human. It seems now to be fairly well established that as the vagi enter the abdomen both nerves supply fibers to anterior and posterior trunks. These anterior and posterior trunks may form actual plexuses. The main gastric branches of the anterior trunk generally course along the lesser curvature of the stomach and supply the anterior surface of the stomach as far as the pyloric antrum. It is questionable whether the pyloric canal and sphincter receive branches from this anterior plexus. The anterior trunk gives off branches to the liver, however, and as these branches cross the lesser omentum, they apparently, at times, communicate with sympathetic fibers. The posterior vagal trunk apparently sends fibers to the pyloric sphincter and the pyloric canal along with the upper portion of the duodenum.

The posterior trunk also may be traced to the liver, the pancreas and celiac plexus. Its hepatic branch passes to the liver through the gastrohepatic ligament where it is joined by a branch apparently from the anterior plexus. These fibers here, and also as they pass through the celiac ganglia, become incorporated in the same trunk with the sympathetic supply. It is questionable whether true synapses occur in the celiac ganglia, insofar as vagal fibers are concerned.

The majority of the nerve fibers which are distributed to the biliary tree are derived from the sympathetic system and reach the liver by way of the celiac plexus (Kuntz<sup>3</sup>). These fibers are derived from the greater splanchnic nerves which have their origin predominantly from the T6-T9 sympathetic ganglia, and the lesser splanchnics

which arise from the T10-T12 sympathetic ganglia.

In the final distributions of the sympathetic plexuses, one again encounters considerable dis-



Fig. 1. Dissection of nerve supply to gall bladder and bile ducts (after Raigorodsky).

agreement in anatomical dissections. In our experience, the studies of Raigorodsky<sup>7</sup> have, for the most part, held true. He divided the fibers which enter the liver and biliary passages from the celiac plexus into anterior and posterior divisions. The anterior hepatic plexus usually follows the hepatic artery, the pathway changing as the path of the artery varies. The posterior hepatic plexus, with its nerves, passes to the right and superiorly in the portal area, where it first is seen behind the lower third of the portal vein and crosses over on the under surface. It then is found lying in the outer groove between the right periphery of the portal vein and the common bile duct, where it sends filaments to the bile ducts and gall bladder, finally passing to the liver, which it enters in the region of the end-branches of the right hepatic artery. Along the course of the right hepatic artery it anastomoses with ramifications of the anterior hepatic plexus. An illustration of one of the dissections by Raigorodsky is shown (Fig. 1).

It is worth while to call attention to two of the

main nerves supplying the gall bladder which are of considerable clinical interest. The medial nerve arises from the anterior plexus, passes over the anterior surface of the common hepatic ducts, and anastomoses with the posterior hepatic plexus in the triangle of the cystic and hepatic ducts and passes through the medial superior surface of the gall bladder. It often is seen running close to the cystic artery and can be very easily incorporated in the ligature which is placed around the cystic artery during cholecystectomy.

The lateral nerve of the gall bladder arises from the posterior plexus and passes along the lateral surface of the gall bladder and during its course comes relatively close to the cystic duct. It also can be easily incorporated along with the cystic duct in a ligature during cholecystectomy. While there are numerous other smaller fibers reaching the gall bladder and common bile duct, one cannot help being impressed with the size of these two nerves described above.

Latarget<sup>4</sup> has described what is termed the pancreaticocholedochus nerve which is derived from the posterior hepatic plexus and which passes distally to the retroduodenal and intraduodenal portions of the common bile duct. As can be readily seen, this nerve also is of considerable clinical importance.

The common bile duct is surrounded by a plexus of delicate nerve fibers throughout most of its extent. This plexus has connecting branches between the anterior and posterior hepatic plexuses. The posterior surfaces of the cystic, hepatic, and common bile ducts are in close proximity to the posterior hepatic plexus, which contains many large nerve fibers.

Having demonstrated that many of the symptoms seen in cholecystitis can be produced by stimulation of the sympathetic and parasympathetic nerve supply to this region, and having shown that there is an adequate distribution of such nerves to the gall bladder and bile ducts, our next problem comes as a demonstration of a mechanism for the production of such stimulation. In elucidating this mechanism, I shall refer briefly to a contribution of several years ago.<sup>9</sup>

There are numerous ways in which a nerve may be stimulated. So far as the viscera with which we are concerned are affected, stimulation by stretching, ischemia or inflammation plays the most important part. Often there is a



combination of two or three of these factors at the same time. Observation of these phenomena are commonplace in the experience of most surgeons. The production of pain by the stretching of visceral nerves is a frequent observation clinically when the mesentery is pulled upon during an operation under local anesthesia. It also is noted during the spasm of smooth muscles. Here also ischemia plays a part. One sees the fact of ischemia at play as a result of an embolus to an important artery, but here again the formation of acid bodies in the tissues following ischemia might be instrumental also in the production of nervous stimulation. That this actually does take place in the case of lactic acid has been demonstrated by Moore.<sup>6</sup>

Besides lactic acid, another potential chemical stimulant in inflammatory areas is potassium, which is liberated in areas where there is considerable cellular breakdown. It will be readily recalled that in the acute phase of cholecystitis the inflammatory picture is one of necrobiosis. This is associated with considerable increase in capillary permeability, with ensuing edema. Where the process is severe, there may be focal areas of necrosis, not only involving the mucosa but also the wall of the gall bladder. These permeability changes may be so great that there will be a transudation of red blood cells throughout the wall of the gall bladder. In such situations the stimulation of the nerve supply will most likely consist of tension from the edema, upon which is superimposed the chemical stimulation resulting from cellular breakdown.

As the process ages and the edema subsides, there occurs a massive dense collagenous fibroplasia throughout the gall-bladder wall. A constant stretching and ischemia follows this proliferation, with an ensuing lowered threshold of stimulation along the nerve fibers and at the nerve endings. While inflammation is still present, as can be seen evidenced by the accumulation of lymphocytes around such nerve trunks, this scarring probably is the most important factor in the so-called chronic stage of cholecystitis.

We have called attention to the fact in previous publications that this considerable desmoplasia is typical of that seen following injury from the cholesterol and cholic acid derivatives found in bile. Indeed, in one study by Haffner and myself,<sup>10</sup> we were able to demonstrate microscopic

evidence of some of the components of bile in gall-bladder walls in routine sections in approximately one-third of the instances of chronic cholecystitis.

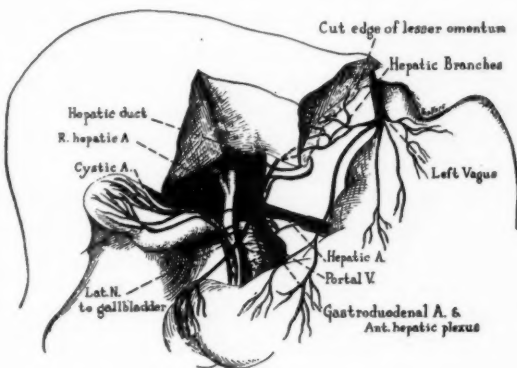


Fig. 2. Diagrammatic representation of nerve supply to gall bladder and bile ducts as often seen in our experience.

Thus, we see that there is present in the gall-bladder wall adequate means of producing a markedly lowered threshold of stimulation of the nerve supply. This will explain why in such damaged viscera stimuli that ordinarily would not be noted now produce symptoms. This can be simply illustrated by the observation that the normal gall bladder is not tender to pressure, whereas the damaged gall bladder, even in the fibrotic state, is tender on deep pressure.

When we consider, therefore, that the symptoms in cholecystitis are related to stimulation of the sympathetic and parasympathetic nerve supply, that this nerve supply is abundant in the gall-bladder and biliary tract regions, and that there does exist a mechanism in the disease state in which these pathways can be stimulated, the rationale of cholecystectomy becomes obvious. In removal of the gall bladder we destroy a considerable number of these fibers. We remove fibers and nerve endings that are damaged, and wherever stones are present we remove a trigger point, so to speak, of stimulation. When so considered, the operation of cholecystectomy in many of its aspects is essentially that of peripheral neurectomy.

If the gall-bladder wall is not involved in inflammation and scar, even though stones are present in the gall bladder, they often will not produce symptoms because the threshold of stimulation of the nerve supply has not been lowered. The

## SYMPTOMS OF CHOLECYSTITIS—WOMACK

only exception to this is when such a stone obstructs the cystic duct. In a similar manner, we now can understand why a stoneless gall bladder may at times produce symptoms. This approach also sheds light on why certain patients will have a persistence of part or all of their preoperative symptoms, for if these nerve trunks become involved in scar around the cystic artery or cystic duct and are held tense over the common bile duct, changes in intraductal tension will serve as a method of stimulation.

When such consideration is given, it becomes obvious that the technique of cholecystectomy must carry with it the destruction of the nerve supply to the gall bladder. This means that the cystic artery and cystic duct must be stripped clean before ligation. It also means that, wherever possible and safe, the nerve supply mesial to the common bile duct should be interrupted. The ex-

tent to which we carry out this type of careful dissection often will determine the completeness of the curability of our therapeutic procedure.

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## COMMON FORMS OF RESPIRATORY ALLERGY

(Continued from Page 708)

confessing his disturbing impulses, and his asthmatic attacks recur when he is unable to unburden himself of his conflicts by confession. Psychotherapy gives the patient an opportunity to confess whatever is disturbing him. Sometimes he will remain free from attacks for a considerable length of time until some new disturbing impulse arises. It does not require a psychiatrist always to aid these people, and even the family physician who understands his patient may be able to discover the particular matters that are disturbing the patient at the time of his attacks, get him to confess them, and when relief is obtained, reassure his patient until another attack occurs. Winning the patient's confidence and talking over his problems freely do much to help many asthmatics.

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## PERIARTERITIS NODOSA (ESSENTIAL POLYARTERITIS)

### Clinical Data on Thirty Cases Proved at Necropsy

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**S**TARTING with Kussmaul and Maier's case of periarteritis nodosa reported in 1866, numerous single case reports of this disease have been published in the medical journals of the United States and foreign countries. The average reader may be somewhat confused by these descriptions of isolated cases because the clinical manifestations in periarteritis nodosa are both numerous and highly variable.

In 1936, Spiegel reported on seventeen cases of periarteritis nodosa. In his group, abdominal pain not adequately explained by the involvement of any single organ was the most prominent presenting symptom. Five of his seventeen patients had had operations for "acute appendicitis." Two additional patients had had exploratory abdominal operations, and an eighth patient had had a ruptured duodenal ulcer. Spiegel was impressed by the combination of abdominal pain with apparently irrelevant symptoms of arthritis, neuritis, nephritis or cardiac failure. Such a combination of signs or symptoms, he felt, should make one suspicious of periarteritis nodosa.

Harris and co-workers, in 1939, reviewed the records of eighty-seven cases of periarteritis nodosa in which necropsy was performed. He noted the widespread involvement, and described the occurrence of the lesions in the following organs with the indicated frequency: kidneys, 87 per cent; heart, 84 per cent; liver, 71 per cent; spleen, 31 per cent, and lungs, 25 per cent.

In a series of articles on periarteritis nodosa written from 1938 to 1944, Boyd<sup>1-7</sup> discussed the various clinical manifestations of the disease under the following headings: cutaneous symptoms, neuromyositic manifestations, abdominal manifestations, renal and cardiac manifestations, cerebral and ocular manifestations and pulmonary manifestations. Jones reviewed records of fourteen pathologically proved cases of periarteritis nodosa in 460,000 admissions to the University Hospital of the University of Michigan in 1942. Diaz-Rivera and Miller reported on seven similarly proved cases in 1946. These authors em-

phasized the varied clinical picture. The ultimate criterion for the diagnosis is still the histopathologic finding of typical and characteristic lesions.

Rich,<sup>18-16</sup> and Rich and Gregory, on the basis of animal experiments and observations on cases of human periarteritis nodosa, felt that at least some cases of the disease resulted from hypersensitivity and were actually allergic vascular reactions. They felt that sensitivity to sulfonamides and other drugs and serum sickness were etiologic factors. Zeek, Smith and Weeter produced lesions in rats which were very similar to those seen in human periarteritis nodosa by removing one kidney and producing perinephritis of the other kidney by wrapping it in silk. Hypertension also developed. They considered that human periarteritis nodosa and human hypersensitivity angiitis are two types of necrotizing panarteritis whose pathogenesis is different and which can be distinguished by careful pathologic studies. It is quite possible that there may be multiple etiologic factors in the entity described as periarteritis nodosa and that we are not dealing with one rare disease but with a group of even rarer diseases.

### The Present Study

This paper is based on an analysis of data on thirty patients who were studied during life at the Mayo Clinic and who subsequently died, and in whom the diagnosis of periarteritis nodosa was made or confirmed at necropsy. We have studied the clinical features encountered in these thirty cases in some detail.

*Age, Sex and Occupation.*—The average age of the patients at the time of death was 43.4 years. The youngest patient, a female child, died at the age of three and one-half years. The oldest patient was seventy-one years old when he died. Two-thirds of the patients were more than forty years old (Table I). There were twenty-seven males and three females. Three of the thirty patients were physicians and a fourth patient was a dentist; otherwise, the occupational representation was not significant.

This paper was written while Dr. Wold was a Fellow in Medicine, Mayo Foundation. Dr. Barker is Chief of a Section in Medicine, Mayo Clinic, Rochester, Minnesota.

# PERIARTERITIS NODOSA—WOLD AND BARKER

TABLE I. DISTRIBUTION OF THIRTY PATIENTS WITH PERIARTERITIS NODOSA ACCORDING TO AGE AT TIME OF DEATH

Age in Years	Patients
0-9	1
10-19	2
20-29	3
30-39	4
40-49	8
50-59	3
60-69	8
70-79	1

**Duration.**—The duration of symptoms was calculated from the date of onset of a presenting symptom or group of symptoms which probably were due to periarteritis nodosa (Table II). It is noteworthy that the majority of patients had symptoms referable to the disease of less than six months' duration. Only four patients (13 per cent) had had symptoms for one year or more.

**Allergy.**—Only three (10 per cent) of our patients gave a definite history of asthma. One patient gave a history of vasomotor rhinitis.

**Sulfonamide Therapy.**—Eleven patients (37 per cent) had received sulfonamide therapy just prior to registration at the clinic or were treated with one of the sulfonamides during the time they were being studied. It is possible that more of the patients had received the drug, without knowing its nature, as part of their treatment at home before coming to the clinic. One of the patients had received abundant topical applications of sulfonamides for the treatment of a severe burn involving 50 per cent of his body area four months prior to admission. Another patient had a fever two weeks prior to his death which was thought to be due to sulfadiazine which he was receiving intravenously at the time. Administration of the drug was discontinued. Sulfadiazine was started orally two days prior to his death. In another instance a patient had received sulfonamide therapy for a sore throat four weeks prior to admission. The patient's sister had received the same drug for a similar condition at the same time. "Bright's disease" developed in the sister. Our patient died seven weeks later with periarteritis nodosa. Five patients received sulfonamides during the terminal state of their illnesses at the clinic. Three patients gave a history of having received one of the sulfonamides within six months prior to the date of their registration at the clinic.

TABLE II. DURATION OF SYMPTOMS OF THIRTY PATIENTS WITH PERIARTERITIS NODOSA

Duration	Cases	
	Number	Per Cent
Less than six months	18	60
Less than one year	26	87
One year or more	4	13

TABLE III. ORGANS OR SYSTEMS WITH WHICH CLINICAL MANIFESTATIONS WERE ASSOCIATED

Organ or System	Cases	
	Number	Per Cent
Gastrointestinal organs	23	77
Peripheral nerves	22	73
Kidneys	21	70
Heart	17	57
Central nervous system	14	47
Lungs	14	47
Skin and subcutaneous tissue	13	43
Skeletal muscles	12	40

**Clinical Manifestations.**—A great variety of clinical symptoms and signs was noted in the different patients. Fever was common and occurred in twenty-one patients (70 per cent). Twenty of the patients (67 per cent) had hypertension as indicated by a blood pressure that was greater than 150 mm. of mercury systolic and 90 mm. diastolic. Frequently the hypertension developed during the time that the patient was being observed for his illness. Data as to the involvement of the various organs or systems are summarized in Table III.

Twenty-three of the thirty patients (77 per cent) had gastrointestinal symptoms, of which abdominal pain was the most frequent. Vomiting, abdominal distention, melena, nausea, hematemesis and jaundice occurred less frequently.

Renal involvement was interpreted to exist when the blood urea measured in excess of 60 mg. per 100 c.c. or when significant albuminuria and urinary casts were present. In fifteen cases (50 per cent), definite azotemia or uremia was encountered. In six additional cases (20 per cent) hematuria was noted.

In fourteen of the thirty cases, there were symptoms which were referable to the central nervous system. Hallucinations, disorientation, unresponsiveness, stupor and coma were noted. In eight of the patients presenting such symptoms there was no associated renal insufficiency or uremia.

Twenty-two of the thirty patients were found to have evidence of peripheral neuritis. This was manifested by muscular weakness, pain along the distribution of nerves, paralysis localized to regions supplied by specific nerves, paresthesias,



hyperesthesias and impaired or absent deep reflexes.

Twelve patients had evidence of myositis as indicated by local tender spots in skeletal muscles, but myositis did not occur without evidence of peripheral neuritis.

Seventeen patients had symptoms of cardiac failure. The cardiac symptoms most often encountered were dyspnea on exertion or while at rest, cyanosis, peripheral edema and ascites.

Fourteen had pulmonary symptoms. Cough was the most often noted, along with pain in the chest and hemoptysis. Three patients had asthma. One patient died of respiratory failure.

Nineteen patients had anemia, as indicated by a hemoglobin determination which was less than 10 gm. per 100 c.c. of blood or an erythrocyte count that was less than 3,500,000 per cubic millimeter of blood. Occasionally, the anemia was severe, but when the value for hemoglobin was less than 4 gm. per 100 c.c., gastrointestinal hemorrhage had occurred previously. Leukocytosis was noted in 80 per cent of the cases, as indicated by a leukocyte count in excess of 10,000 per cubic millimeter of blood. Usually, the leukocyte count ran between 10,000 and 25,000, although in one patient a count of 46,600 was noted. In five cases (17 per cent), eosinophilia was noted. In three of these five instances there was a definite history of asthma, and in these three cases the eosinophils constituted 29 to 73 per cent of the leukocytes; in the fourth patient, who was without a history of any allergic manifestations, 14 per cent of the leukocytes were eosinophils; and in the fifth patient, who had vasomotor rhinitis, the eosinophils made up 20 per cent of the leukocytes, according to counts made elsewhere prior to admission. The eosinophil count was normal during the time the fifth patient was studied at the clinic.

In thirteen of the thirty patients the sedimentation rate of the erythrocytes was determined by the Westergren method. No values below 40 mm. in one hour were recorded, and there was only one value below 67. In four instances the value was more than 100. The average of the values for the thirteen patients was 90.

Thirteen of the thirty patients had lesions of the skin or subcutaneous tissue; however, an analysis of the dermatologic conditions presented shows that in several cases the lesions encountered were probably unrelated to the disease. One patient

had hyperkeratotic lesions of the skin. A second patient had a dermatitis of the hands following exposure to formaldehyde. A third patient had a draining sinus, and *Actinomyces* were found in the purulent drainage. We feel that these dermatologic conditions were probably unrelated to the periarteritis nodosa. Only four patients had subcutaneous nodules. In one instance a few scattered discrete nodules were found. In another, tender nodules were found over the course of a brachial artery. In a third, there were small, subcutaneous nodules in the region of the left biceps. In a fourth, the nodules were palpated over the elbow. In each instance in which nodules were observed, one was removed for biopsy.

Purpuric or hemorrhagic areas in the skin were more common than were subcutaneous nodules. The purpuric spots were observed in six patients (20 per cent of thirty cases). In one patient, discrete red spots 1 cm. in diameter or less were found on the lower extremities in association with subcutaneous nodules along the course of a brachial artery. A second patient had discrete red areas measuring 0.1 to 1.0 cm. in diameter and distributed generally over his body. Some of the areas were ulcerated and some had fluctuant centers. Purpuric spots and infarctions of the skin were noted in two patients. In another patient small petechial hemorrhages and abscesses developed over the dorsal surface of the wrist during the terminal stages of the illness.

*Biopsy.*—Biopsy had been done in eleven of the thirty cases. In one instance the specimen was from the liver, and in one a kidney was removed, but in neither of these were lesions of periarteritis nodosa found. Subsequently, re-examination of the kidney did show such lesions. In the other nine cases the specimen was from skeletal muscle, skin or both, at the site of a nodule, skin lesion or painful spot. In two cases periarteritis nodosa was diagnosed from biopsy. In one there was mild periangiitis and in one there was marked thickening of arterial walls without periarteritis or necrosis of the medial coat. In two cases the picture was that of dermatomyositis. In the other three cases no diagnosis could be made from the biopsy specimen.

*Clinical Diagnosis.*—A decade ago the antemortem diagnosis of periarteritis nodosa was rare-

# PERIARTERITIS NODOSA—WOLD AND BARKER

TABLE IV. CLINICAL DIAGNOSIS IN THIRTY CASES OF PERIARTERITIS NODOSA FOUND AT NECROPSY

Case	Year	Clinical Diagnosis
1	1926	Multiple neuritis. Lead poisoning.
2	1931	Hypertension. Chronic glomerulonephritis. Hepatic or subphrenic abscess.
3	1936	Malignant hypertension. Acute retinitis with detachment of both retinas. Myocardial degeneration with congestive heart failure. Renal insufficiency. Pericarditis. Respiratory paralysis.
4	1937	Obscure fever. Cardiac neurosis.
5	1938	Indeterminate. Dermatomyositis. Osteomyelitis. Peritonitis.
6	1939	Indeterminate.
7	1940	Periarteritis nodosa.
8	1940	Cerebral vascular accident. Thrombosis of basilar artery with infarction of pons.
9	1942	Acute glomerulonephritis. Dermatomyositis. Neuritis.
10	1942	Chronic glomerulonephritis. Malignant hypertension.
11	1942	Periarteritis nodosa.
12	1942	Periarteritis nodosa.
13	1942	Periarteritis nodosa.
14	1943	Periarteritis nodosa.
15	1943	Indeterminate. Periarteritis nodosa.
16	1944	Indeterminate. Brain abscess? Nephritis?
17	1944	Pneumonia. Cardiac failure. Anemia.
18	1944	Septicemia. Miliary tuberculosis. Brain abscess?
19	1945	Systemic actinomycosis. Peripheral neuritis.
20	1945	Malignant hypertension.
21	1945	Massive gastrointestinal hemorrhage. Cause undetermined.
22	1945	Periarteritis nodosa.
23	1946	Periarteritis nodosa.
24	1946	Periarteritis nodosa. Lupus erythematosus? Coccidiomycosis? Leukemia?
25	1946	Periarteritis nodosa with multiple mesenteric thrombi and gangrene of bowel.
26	1946	Periarteritis nodosa.
27	1946	Malignant hypertension. Hypertensive heart disease. Congestive heart failure. Azotemia.
28	1947	Periarteritis nodosa.
29	1947	Malignant hypertension. Pulmonary embolism. Bronchopneumonia. Cerebral vascular accident.
30	1947	Malignant hypertension

ly made. The clinical diagnosis of the disease still may be very difficult because of the protean manifestations and the great variability in the location of the organs or systems involved.

In eleven of the thirty patients in our series (37 per cent), the diagnosis of periarteritis nodosa was made before death. Table IV gives the year of death and the clinical diagnosis which was made in all of the cases included in this series. It shows the increased frequency with which the correct clinical diagnosis has been made in recent years. It also indicates that an increasing number of cases of periarteritis nodosa have been found at necropsy since 1940.

In Case 25, the diagnosis was confirmed at the time of surgical exploration of the abdomen. Periarteritis nodosa was suspected prior to the operation which was performed because the pancreas was felt to be a possible source of severe abdominal pain. Infarction of loops of bowel was found and these loops were exteriorized. It was noted at operation that there were thrombi in many of the mesenteric vessels.

In four instances, the correct diagnosis was

ventured on clinical evidence alone. No biopsy was done.

## Comment

It is worthy of comment that the clinical diagnosis was made in only eleven of this series of thirty cases in which the diagnosis was established at necropsy. In seven cases the clinical diagnosis of malignant hypertension or chronic glomerulonephritis was made. This suggests that periarteritis nodosa may commonly produce a clinical picture very similar to that seen in the terminal stages of malignant hypertension and chronic glomerulonephritis. It is known that a widespread necrotizing panarteritis may occur in the terminal stages of malignant hypertension and glomerulonephritis, but the arterial lesions are not considered to be identical with those of periarteritis nodosa. It is also worthy of comment that the information obtained from biopsy in the eleven cases in which it was done was for the most part disappointing and in several instances confusing. A positive result on biopsy is generally regarded as the best diagnostic evidence, but a negative result does not exclude the diagnosis. Also it would appear that in periarteritis nodosa a muscle biopsy may occasionally show the picture of dermatomyositis, which in some instances may be a closely related disease. It has been our experience that the so-called blind muscle biopsy or biopsy of a skeletal muscle in a region where there is no pain, tenderness, nodule, or other evidence of lesion is almost never of value for demonstration of the vascular lesions. However, during the past seven years we have known of a number of cases in which necropsy was not done but in which the diagnosis of periarteritis nodosa was established by biopsy of a nodule or a painful or tender spot in muscle or a lesion of the skin. Some of these patients are still alive.

Analysis of the clinical data in our thirty cases re-emphasizes the protean clinical manifestations of the disease known as periarteritis nodosa and the previous observation that one or several organ systems of the body may be affected. The combination of protracted fever, anemia, gastrointestinal disturbances, renal disease, peripheral neuritis and muscle pains is very suggestive, but to have all those manifestations in one patient with periarteritis nodosa is not common. The outstanding manifestations may be in the skin or central nervous system.

It is worthy of comment that in the thirteen patients in our series for whom the sedimentation rate of the erythrocytes was determined, it was increased in all cases and quite rapid in almost all.

Only three (10 per cent) of our patients had a definite history of asthma. This compares with Rackemann and Greene's finding of nineteen cases of asthma in 229 cases of periarteritis nodosa (8.3 per cent). In addition to the three cases of asthma, there was one case of vasomotor rhinitis and one questionable instance of drug fever (sulfonamide) in our series. There was no instance of serum sickness in our thirty cases of periarteritis nodosa. Rich<sup>18</sup> found a few cases of periarteritis nodosa, which had been overlooked previously, by reviewing the data on all cases of serum sickness which were available to him. However, attempts by us to find periarteritis nodosa in cases of fatal serum sickness in the Section on Pathologic Anatomy of the clinic were unsuccessful.

Eosinophilia in our series occurred infrequently; it was found in only five patients. In three of these there was also a history of long-standing asthma. This is consistent with Rackemann and Greene's finding of a high eosinophil count in twelve of nineteen cases (63 per cent) of periarteritis nodosa with asthma, and in only 15 per cent of cases of periarteritis without asthma.

### Summary

The clinical findings in thirty cases in which a diagnosis of periarteritis nodosa was made at necropsy have been carefully reviewed. History or evidence of allergic reactions or drug sensitivity were infrequent. The symptoms and clinical findings were variable and involved different organ systems in various combinations. The gas-

trointestinal organs, kidneys and peripheral nerves were most frequently affected clinically. The sedimentation rate of the erythrocytes was significantly increased in all of the thirteen cases in which it was determined.

A clinical diagnosis of periarteritis nodosa was made in eleven of the thirty cases. In seven others the diagnosis was malignant hypertension or chronic glomerulonephritis.

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## THERAPEUTIC PROBLEMS ENCOUNTERED IN ACUTE POLIOMYELITIS

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techniques we can do much to reduce both the mortality and the complications of the acute case.

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## INVASION OF BLOOD VESSELS BY SOFT TISSUE FIBROSARCOMA

### Report of Three Cases

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**F**IBROSARCOMA represents the majority of the primary malignant lesions of the soft tissues of the extremities;<sup>1,2</sup> it occurred in 65.5 per cent of the 232 cases which we have studied at the Mayo Clinic.

The subcutaneous and intermuscular tissues were found to be the favorite sites for the development of this type of lesion.<sup>7</sup> Frequently it appears dense but sharply separated from the surrounding tissues, as its growth mainly by expansion and encapsulation is a characteristic feature. In some cases, however, an infiltrating growth may be found, with the tumor densely attached to the surrounding parts. Not infrequently, the lesion completely surrounds the blood vessels, nerve trunks and other important structures, incasing them within solid masses of tumor tissues.<sup>5</sup>

The clinical course of fibrosarcoma is progressive, and even after local excision of the mass, the tumor often recurs. On recurrence, the lesion is found to be well circumscribed and still encapsulated in the region of the original growth, but the lesions may also be multiple and scattered throughout the tissues at some distance from the site of operation.<sup>12</sup> Muscle appears to be a favorable soil for secondary invasion. With each recurrence, the disease involves more and more of the surrounding tissues, usually produces metastatic lesions and finally causes death from hemorrhage or emaciation. The duration of life after the onset of symptoms varies with the degree of malignancy and averages about five years.<sup>3</sup> The most frequent cause of death is metastasis to the lungs, and this may occur in patients in whom the grade of malignancy is relatively low. The very cellular hyperchromatic spindle-cell lesion, in particular, shows a tendency to metastasize to the lungs. The less frequent sites of metastasis are the skin and subcutaneous tissues, the regional lymph nodes, the muscles, the skull, the vertebrae and ribs, and the liver and brain. Although dissemination of metastatic sarcoma by the venous route is common enough, the actual

observation of invasion by direct extension into a blood clot is rather rarely seen by the surgeon.

In the three cases which will be reported, the patients were operated on recently and the blood vessels were secondarily involved. The extension of malignant cells into the minute clot in Case 1 clearly demonstrates how metastasis may occur through blood vessels. Case 2 demonstrates extension of fibrosarcoma into several veins of the dorsum of the foot (Fig. 1), while Case 3 illustrates the formation of an aneurysm as a result of destruction of the wall of the femoral vein by fibrosarcoma.

Tumors of veins may be benign or malignant, primary or secondary. As to *benign tumors*, reference is made to four cases of benign myoma reported by Aufrecht, Böttcher, Schnijder and Cernezzì. Also, secondary myxomas and cartilaginous tumors occur, and the latter especially are not infrequently seen to invade blood vessels. Egdahl in 1921 reported a case of *primary malignant* intravascular tumor, probably spindle-cell sarcoma; this growth was entirely intravascular. A similar case is that reported by van Ree, in which the sarcoma originated in the intima of a vessel wall and simulated thrombosed varices. A thrombosed mass showing sarcomatous degeneration was reported on by Razzaboni in 1920. In the literature there are many reports of cases of carcinoma in which primary, but more usually secondary, masses formed by direct extension within veins. Other malignant tumors, such as chondrosarcomas, invade large blood vessels; examples are the cases of Warren and Ernst. Very rare are sarcomas originating from the vessel wall. Three cases of sarcoma originating from the wall of the aorta were reported by Brodowski, Miura and Auffermann.<sup>1,6</sup> Also, Tillmanns reported a case of angiosarcoma (?).

Davis' case of fibrosarcoma, in which extensive invasion of the cephalic vein had occurred, was the only one found reported in the literature. This lesion belonged to the group of desmoids, which are much less malignant than fascial fibrosarcoma, especially fascial fibrosarcoma of the thigh.

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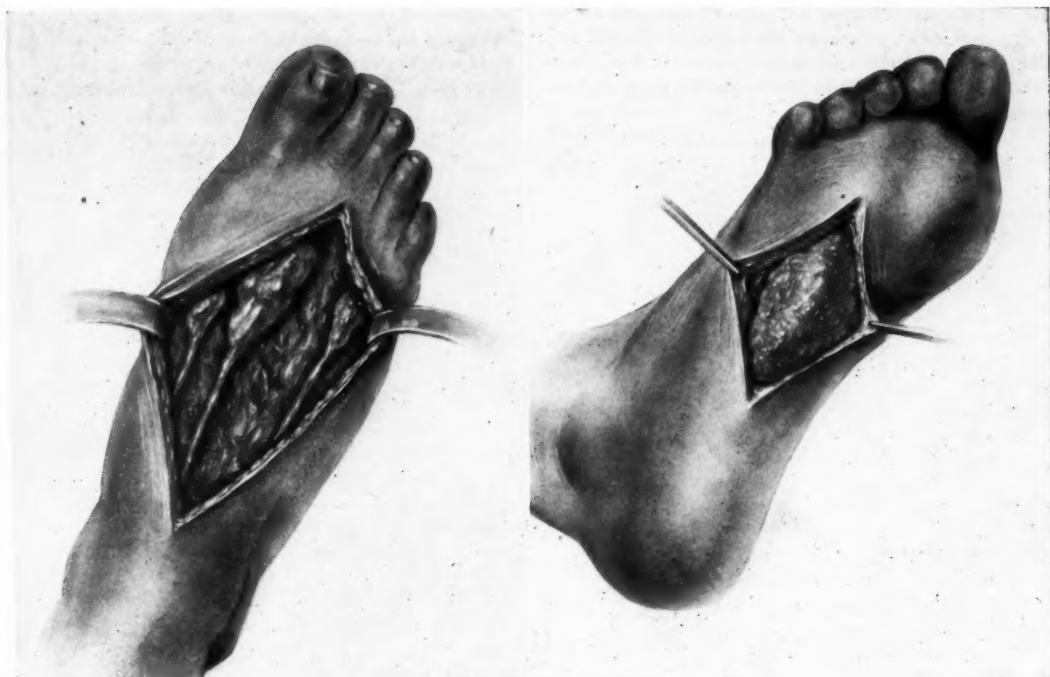


Fig. 1. Fibrosarcoma, grade 2, involving (A) the dorsal and (B) the plantar aspects of the foot with intravenous invasion.

### Report of Cases

**Case 1. Fibrosarcoma, Grade 3, of the Leg Showing Malignant Cells Growing in a Blood Clot of a Vein in a Patient with Diabetes.**—A man sixty-two years of age was admitted at the clinic with a principal complaint of pain in the left foot and leg of five months' duration. He had first noticed, about five months prior to admission, numbness and tingling in the left foot at night, which disappeared in the daytime. This pain had continued to bother him. It was described as sharp and knifelike in character and was located in various parts of the left leg and foot. Concomitant with the pain, he had noticed swelling of the left foot which did not disappear with rest in bed. About a month prior to his admission the pain had become much worse; it had been present both night and day, and he had had occasional nocturnal cramps in the legs. Also, he had noticed some weakness in the left foot and inability to dorsiflex the left great toe; he was unable to wear his shoe on this foot, and the leg felt better when in a dependent position or when cool. Roentgenograms made early revealed no abnormality but later roentgenograms disclosed a soft tissue shadow between the tibia and fibula. He had had influenza and pneumonia followed by pleurisy in 1918, and he had suffered from a stone in the left kidney with hematuria in 1942. The family history was noncontributory. The patient had been married for forty-eight years and had four healthy children.

This patient had had diabetes mellitus for six years

with a possible onset nine years prior to admission, as at that time he had had polyuria, polydipsia and loss of weight. He had lost 10 pounds (4.5 kg.) in the four months prior to admission. At the time of his examination at the clinic he was taking insulin daily. He appeared to be a well-developed and well-nourished man, who walked with a limp on the left. His height was 5 feet 8½ inches (174 cm.), and his weight was 181 pounds (82.1 kg.) without clothes. The blood pressure was 134 systolic and 70 diastolic, expressed in millimeters of mercury; the pulse rate was 84 beats per minute. The physical examination gave essentially negative results except for the extremities; edema of the left ankle and foot was graded 3, that of the right foot, grade 1. There was a firm mass, 6 by 3 inches (15.2 by 7.6 cm.) located along the lateral aspect of the middle third of the left tibia; it was not attached to the skin but was fixed to the deeper structures. The muscles of the calf were tender, the left foot was warmer than the right but no color changes were noticed. The pulsation of both posterior tibial arteries was normal, but neither dorsalis pedis artery could be felt. There was a noticeable weakness of dorsiflexion of the left foot, especially in the great toe. The left ankle jerk was absent.

The hemoglobin measured 16.6 gm. per 100 c.c. of blood, the erythrocytes numbered 4,600,000, and the leukocytes, 5,200 per cubic millimeter of blood. The result of the flocculation test for syphilis was negative. The value for blood sugar was 144 mg. per 100 c.c.

## SOFT TISSUE FIBROSARCOMA—MEYERDING AND PILS

The sedimentation rate was 27 mm. in one hour by the Westergren method, and ten days later it was 67 mm. The results of urinalysis on two occasions were negative. The test for Bence Jones protein gave negative

lification of bone at the medial and lateral aspects of the upper third of the shaft of the left tibia and vascular calcifications. The bone otherwise appeared to be normal. The anteroposterior and lateral roentgeno-

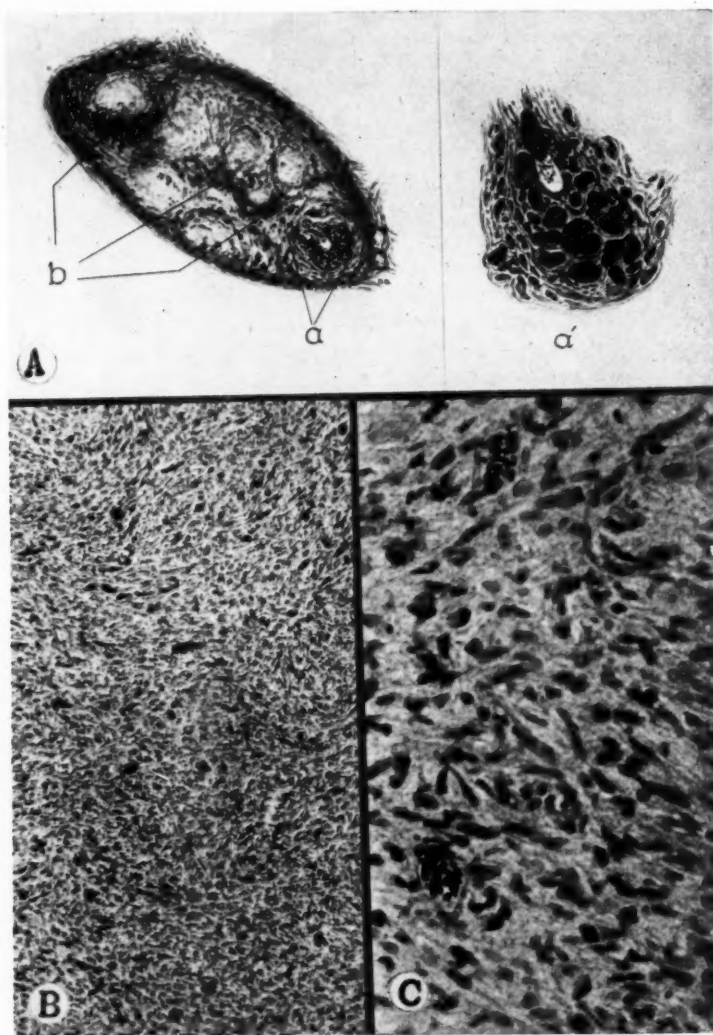


Fig. 2. (A) Blood vessel containing organized blood clot with nests of malignant cells which have grown by direct invasion: (a') enlargement of a, showing malignant character of cells; (b) nests of malignant cells in organizing blood clot. (B) Fibrosarcoma, grade 3 (x35). (C) Same (x200).

results. The roentgenograms of the chest showed a rounded mass, 2 cm. in diameter, at the level of the sixth interspace posteriorly; it was felt that this possibly was the result of an inflammatory process but that the possibility of a malignant lesion, either primary or metastatic, should be excluded. There was minimal fibrosis at the level of the first anterior interspace on the right and calcification of the arch of the aorta. The roentgenograms of the left leg revealed slight periosteal pro-

grams of the lumbosacral region showed hypertrophic changes in the lumbar part of the spinal column. There was evidence of multiple small calculi just to the right of the body of the second lumbar vertebra and also multiple rounded areas of increased density in the pelvis.

At operation on November 22, 1946, through an incision 2 inches (5 cm.) in length a specimen was removed for microscopic examination by the fresh frozen tissue

method. The tumor was exposed and found to lie underneath the tibialis anticus muscle; it was grayish yellow in color and hard and it felt gritty. Microscopic examination revealed fibrosarcoma, grade 3, invading muscle and blood vessels which contained organized blood clots with nests of malignant cells (Fig. 2, A, B and C). The patient was informed of the malignant nature of the lesion and of the lesion in the lung, which probably was metastatic, although there was a possibility that the pulmonary lesion was of an inflammatory character. Surgical treatment was felt to be justified, and the patient decided to have an amputation.

On November 28, amputation at the juncture of the middle and lower thirds of the femur was performed with the patient under spinal anesthesia. The pathologic examination of the specimen revealed an infiltrating fibrosarcoma, grade 3, 10 by 7 by 7 cm., deep in the soft tissue of the leg with involvement of the periosteum of both the tibia and fibula, the interosseous membrane and the anterior muscles of the leg. The tumor had invaded several blood vessels and had produced a metastatic nodule, 1.5 cm. in diameter, which was attached to the popliteal vein. The patient was given dicumarol post-operatively, and he had an uneventful convalescence. He was dismissed on December 12, 1946. He reported by letter, July, 1947, that three months after he had returned home he had had pleurisy. The physician reported that death had occurred about eight months subsequent to operation as a result of pulmonary metastasis.

*Case 2. Fibrosarcoma, Grade 2, of the Foot with Malignant Extension into Blood Vessels.*—A patient forty-six years of age first noticed a painless swelling over the instep of his right foot in January, 1946, and remained under the observation of physicians until May 31, 1946, at which time biopsy and microscopic examination of tissue removed revealed fibrosarcoma. The roentgenograms of the chest at that time disclosed no abnormality. The patient had had a "sensitive feeling" in the ball of the right foot in 1941, but nothing abnormal had been found on examination; this sensation gradually had disappeared, there had been no trauma and he had served in the armed forces for six months without complaint. The father of this patient had died at the age of sixty-two years from hypertensive cardiovascular disease; the mother had died at the age of thirty-six years from a tumor of the brain; four sisters were living and well, but two brothers had died in infancy.

Examination at the clinic, June 10, 1946, revealed a firm swelling over the dorsum of the second and third metatarsal bones of the right foot with a small post-operative scar in this region; a separate mass, 1 cm. in diameter, could be palpated over the head of the fourth metatarsal bone. Hard pencil-like veins extended proximally from these tumors. There was a third mass on the plantar surface of the foot, which was larger than either of the two masses on the dorsum. The whole foot revealed diffuse edema and felt warmer than the left one. Sections of the tissue removed prior to his admission at the clinic and brought by the patient revealed fibrous hemangioma.

The examination further revealed essentially negative urinary findings, 14.4 gm. of hemoglobin and 5,800 leukocytes. The flocculation test for syphilis gave negative results. The sedimentation rate was 22 mm. in one hour by the Westergren method. The roentgenograms of the chest disclosed no abnormality, those of the right foot showed calcaneal spurs and there was no evidence of neoplasm of bone.

On June 11, 1946, excision of the tumors was performed with the patient under pentothal sodium anesthesia. The tumor of the dorsum of the foot consisted of two masses. The medial mass, 1½ by ¾ inch (3.8 by 1.9 cm.) in size, was intimately connected with the dorsalis pedis artery, which was thickened to about five times its normal size and the lumen of which contained friable tumor tissue. The artery was dissected upward until a level was reached at which it appeared normal, which was just below the ankle joint. The second mass on the lateral aspect of the dorsum of the foot, overlying the fourth metatarsal head, was ¾ inch (1.9 cm.) in diameter and there, too, a thickened vessel containing similar friable tumor tissue was found. This vessel was ligated 5 inches (12.7 cm.) proximal to the tumor and excised. Both tumors were removed. Tumor tissue was found to extend through the metatarsal bones to the plantar mass. As the tissue was very friable, a curet was required to scoop it out; this resulted in breaking it into several pieces, some of which were whitish and some whitish yellow or gray. The pathologist deferred diagnosis of the fresh frozen sections, but later, after a more detailed study, reported a degenerating and hyalinized fibrosarcoma, grade 2. The tumor had invaded large blood vessels and weighed about 30 gm. (Fig. 1).

The plantar tumor was extensive and it was obviously impossible to excise it completely. Amputation above the knee at the junction of the middle and lower thirds of the femur was performed June 14, 1946, with the patient under spinal anesthesia, and examination of the foot showed additional tumor tissue in the plantar region which we knew could not be successfully removed at the previous operation. There was no apparent extension of the tumor beyond the foot. The patient made an uneventful recovery. Roentgenograms of the thorax made in January, 1947, and in September, 1947, revealed no abnormality, and in January, 1948, the patient said he was well and had no trouble.

*Case 3. Fibrosarcoma, Grade 4, of the Left Thigh.*—A woman fifty-six years of age was seen in January, 1947, at which time she gave a history of sustaining a fall and landing on her buttocks in October, 1946. She stated that no roentgenograms had been made but that three weeks after this fall she had noticed a swelling on the inner aspect of the left thigh which became painful and that a diagnosis of thrombophlebitis had been made. The popliteal vessels had been prominent but there was no edema of the lower part of the leg. She stated that she had been treated with sitz baths and that her symptoms had subsided, but three weeks prior to admission at the clinic her symptoms had recurred.

Examination January 13, 1947, revealed an obese healthy-appearing woman, whose weight was 148 pounds (67.1 kg.) and whose blood pressure was 120 systolic and 80 diastolic. Palpation revealed a firm mass, 4 inches (10 cm.) in diameter and about 2 inches (5 cm.) deep, on the anteromedial aspect of the muscles of the upper part of the left thigh, which appeared fixed to the bone or to the deep muscles.

The urinalysis gave negative results. The value for hemoglobin was 11.2 gm., the erythrocytes numbered 3,740,000 and the leukocytes, 5,400. The sedimentation rate was 49 mm. in one hour by the Westergren method. The roentgenograms of the left thigh showed a mass in the soft tissue involving the muscles of the anteromedial aspect of the middle third of the left thigh; the bone appeared to be normal.

At exploratory operation January 16, 1947, the mass was found to be bluish in color, and the femoral artery and vein were stretched so tightly across the anterolateral surface of the tumor that the artery was not pulsating. The femoral artery was then dissected out and reflected laterally, after which it was ligated above and below. The adductor brevis muscle seemed to end in the mass and was cut across after which it was possible to dissect down the fascial plane to the medial lip of the linea aspera and then to deliver the mass in toto. The femoral vein was found intimately bound with the tumor and apparently "was continuous with the inside of the saccular mass"; the artery appeared undamaged. A careful examination of the specimen was made, and the surgeon expressed the belief that the tumor had formed an aneurysm in the wall of the femoral vein. The lumen was filled with old, organized blood clots. The pathologist made a diagnosis of fibrosarcoma, grade 4.

The patient made an uneventful recovery after her operation and was given two deep roentgen ray treatments on the eighth and eleventh postoperative days. Examination on May 14, 1947, revealed no signs of recurrence or of metastasis to the lungs. She had gained weight, and the sedimentation rate was 40 mm. No further roentgen therapy was thought advisable at that time. In August, 1947, however, the patient's physician reported metastasis to the right lung, and death occurred on October 27, 1947.

### Comment

We have previously stated that about 50 per cent of fibrosarcomas appear encapsulated and that the results of treatment are directly proportional to the degree of malignancy. The surviving patient in Case 2 had a grade 2 fibrosarcoma. We

believe that better results will be obtained when the true nature of the tumor is diagnosed earlier. In the early stages of the disease, wide excision, or amputation if this is possible, is advisable. We have found these tumors very highly radioresistant, and it is our opinion that favorable results do not follow such treatment. Thus, the surgeon must determine the type and degree of malignancy and the operability of the lesion as indicated by its site and size; the duration and rapidity of recent growth are important factors to be considered. Furthermore, the treatment will be determined in part by whether or not there has been extensive invasion to important structures, that is, nerves and blood vessels. Roentgenographic examination of the thorax should be made in all cases to exclude the possibility of pulmonary metastasis. Amputation is often performed as a palliative measure because the patient may be suffering from intense pain resulting from a rapidly growing tumor that has failed to respond to other methods of treatment.

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### MEDICAL PUBLICATIONS AND REPRINTS REQUESTED

Requests have been received from Japanese medical institutions for medical literature in the form of reprints particularly, but also medical journals and text books published since 1941. Literature on tuberculosis is espe-

cially desired. Physicians wishing to contribute may send such literature to Professor Quigley at the Department of Political Science, University of Minnesota, Minneapolis 14, Minnesota.



## THE RELATION OF THE PATHOLOGIST TO THE GENERAL PRACTITIONER

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THE SUBJECT of this discussion seems extremely elementary at first glance. However, calm reflection demands that first, we define "pathologist" and "general practitioner"; second, that we review the relationship which exists at present between these two branches of the practice of medicine; and, third, that we speculate as to what can and should be done in the future in order that the two may be of greater service to each other and particularly to the patient.

Pathology is defined as the science of the origin, nature, and course of diseases. A pathologist is one who limits his practice to that of pathology. As such, he is a specialist in the practice of medicine. The so-called "clinical pathologist" has developed during the past quarter of a century. Salter,<sup>1</sup> an internist, has defined clinical pathology as "merely the adaptation of the fruits of fundamental research to concrete problems in medical practice." Sanford,<sup>2</sup> in his presidential address before the section on pathology and physiology of the American Medical Association in 1930, said, "A clinical pathologist is a physician who devotes all or the major portion of his time to diagnosis of disease by laboratory methods. He is a histopathologist and a microscopist. He must be a serologist, a bacteriologist, and somewhat of a chemist and physicist. In this field of varied interests he must always be up-to-date and must serve chiefly as a consultant in interpreting and evaluating laboratory data for his medical brethren." This is a large order, but it indicates the diversity of the clinical pathologist's interests today and suggests the extent of his usefulness in the practice of medicine.

Someone has said that a specialist is one who knows more and more about less and less. If the pathologist is a specialist, and generally he is so considered, the definition does not apply to him. During the past twenty-five years, the pathologist has emerged from the individual who too often was primarily interested in "deadhouse" pathology to a consulting specialist worthy of the name. He has become interested in the patient, and, as a result, is playing an important role in clinical

diagnosis and in the determination of the proper form of treatment. To do so he must be familiar, not only with advances in his own specialty, but also with those of medicine in general. Truly, the pathologist of today needs to know more and more about more and more.

The same wit who defined a specialist defined a general practitioner as one who knows less and less about more and more. Certainly those of us who know general practitioners will not agree with this definition. Some prefer to call him a practitioner of general medicine, others a specialist in the general practice of medicine. Whatever his title, he remains the backbone of medicine today and its hope for the future. To be successful he must combine the art and science of medicine more effectively than any limited specialist. He also has come a long way from the horse and buggy days when he spent most of his time on the road to and from his patients, and carried all his diagnostic facilities and therapy in one or, at the most, two bags. Today, more and more of his patients are being seen in the office, and a high percentage of them are under his care in a large or, more often, small hospital. He is confronted daily with problems in pediatrics, obstetrics, internal medicine, fractures, general surgery, and last but not least, geriatrics. Surely, he like the pathologist, needs to know about more and more.

It is generally agreed that pathology is the foundation of the practice of medicine. The practitioner, general or limited, must have an understanding of the pathology of a disease in order that he may correctly diagnose it and outline its treatment. Pathological anatomy is stressed in the undergraduate training of the medical student so that the graduate in medicine, especially in these days, has a good theoretical knowledge of its contents. However, the scope of pathology has become so broad, with the developments in pathological physiology, physiological chemistry, bacteriology, immunology, serology, and hematology, that the average medical graduate cannot hope to retain more than a minimal knowledge of the subject. If he becomes a general practitioner he is too busy caring for patients with all kinds of

<sup>1</sup>The Arthur H. Sanford Lectureship, sponsored by the Minnesota Society of Clinical Pathologists, delivered at the annual meeting of the Minnesota State Medical Association, Saint Paul, Minnesota, May 11, 1949.

complaints to pursue his study of these subjects except as one or possibly two of them intrigue him or, of necessity, demand his attention. The role of the pathologist is to provide this knowledge in order that the clinician may apply it in the diagnosis and treatment of his patients.

The multitude and variety of clinical laboratory tests available today is phenomenal. Which tests are of real value? Which tests should be used in a given case? These are questions which the general practitioner cannot always be expected to answer. Unfortunately only a relatively few laboratory tests are diagnostic. The presence of amebae histolytica in the stool is diagnostic of amebiasis; a fasting blood sugar of 125 mg. per cent or more invariably means diabetes; a positive Friedman test usually denotes pregnancy; and the presence of blast forms in the blood smear suggests leukemia. The well-trained chemist or technologist can and does perform most of these tests, but it requires the opinion of one who is specially trained to evaluate them properly in a given case. The general practitioner cannot be expected to do so in every instance and he needs someone to do it for him. The pathologist can and should provide this service. The large hospital or teaching institution has facilities for performing most of the laboratory tests available today. However, the small hospital, in which the majority of the general practitioner's patients are taken care of, rarely provides such complete service. Here again the pathologist can be of great service to the general practitioner in outlining the minimum laboratory procedures of value in a given case and also of suggesting other tests if the basic tests do not supply the answer. The technician is not qualified to do this and should not be relied upon to do so.

With the growth in the number of laboratory tests, the technical difficulties in their performance have multiplied. Time and training are necessary if the results of tests performed by technicians are to be reliable. The evaluation of the newer tests requires time-consuming study. The average general practitioner does not have the time to attend to these details nor does he have the training to supervise the work of the laboratory technician. Here, again, the pathologist can be of service to him.

Undoubtedly the most important fields in which the pathologist can be of assistance to the general practitioner are in tissue diagnosis, both surgical

and postmortem, hematology, bacteriology, and serology.

More and more surgical procedures are being performed in the smaller hospitals, especially in rural areas. It is just as essential, for the protection of the public and the professional growth of the surgeon, that tissues removed at operation in the small hospital be examined by a pathologist as in a large hospital. Likewise, the postmortem examination is as necessary a procedure in the small hospital as in the large hospital if the staff members are to profit by errors in diagnosis, evaluation of therapeutic measures employed, and a discussion of the pathogenesis, symptomatology, diagnosis, and treatment of a given disease. The clinical-pathological conference, conducted by the pathologist, who has the surgical or postmortem material at hand for demonstration, can be as stimulating an event in the small hospital as in the large hospital. Again, the pathologist can be of great service to the general practitioner in this respect.

Forensic medicine is a field which has not been given the attention it deserves. The quality of the testimony of the medical expert in court is being questioned, and the accumulation of medicolegal data concerning the investigation of deaths in which there is a suspicion of criminal, traumatic, or occupational origin, leaves much to be desired. Too many postmortem investigations of such cases are being performed by practitioners who are neither trained in pathology nor in medical jurisprudence. The pathologist can relieve this situation if he is asked to perform the autopsy and to consult with the practitioner who is interested in the case.

The role of the general practitioner in the early diagnosis of cancer is more fully appreciated than ever before. The American Cancer Society is stressing the advisability of periodic physical examinations by the family physician. Usually the family physician is a general practitioner. The Society has developed a broad program of progressive education beamed at the general practitioner, for if he sees the patient first he must be "cancer minded" and it is his duty to give the patient a thorough physical examination. Fortunately a large percentage of cancers can be seen or felt. Those beyond these two senses can usually be detected, even in their early stages, if the examining physician has a high degree of suspicion and is willing to refer his patient to others who

have special diagnostic facilities at their command. More and more general practitioners in my area are doing biopsies of skin, mouth, and cervical lesions. From there on the services of a pathologist are essential.

The diagnosis of exfoliated cells, as popularized by Papanicolaou, has placed a potent weapon in the hands of the medical profession in the war on cancer. Any general practitioner who takes the time to learn the simple technique of obtaining smears from the vagina and cervix, or of collecting sputum and urine, can complete the first step in a most valuable screening test for cancer. The next step is that of interpretation of the cells present in the prepared specimen. This requires the services of one who is trained in histology and histopathology. Undoubtedly technicians can be trained to eliminate the specimens which contain normal cells, but it requires an expert to recognize the abnormal cells. The general practitioner should understand the complexity of this problem and not be led to believe that the procedure is simple and can be delegated to a technician, no matter how well trained he or she may be. Furthermore, it should be emphasized that a cytologic diagnosis of exfoliated cells is not always the final answer. Failure to recognize malignant cells in a smear will lull the physician and patient into a sense of false security, and a positive diagnosis of malignancy may be disastrous unless it is confirmed by other examinations. The role of the well-trained and experienced pathologist in this procedure is obvious. The method will fall into disrepute unless clinicians, and the public, realize that it is primarily a screening test for cancer, the results of which depend on the ability of the examiner to recognize individual malignant cells.

Postmortem examinations are as important in the practice of the general practitioner as in that of the specialist. A few general practitioners perform a very good autopsy, especially those who have taken an interest in the procedure during student and intern days. But the number is limited, and most general practitioners with whom I come in contact are reluctant to perform a post-mortem examination because they realize their inability to do it properly. They appreciate having a pathologist available to perform the autopsy for them. Most pathologists are glad to co-operate even though it may require much of their time. The problem of compensation for the pathologist who performs an autopsy on patients who have not

been patients in his hospital is difficult because it is usually done for scientific reasons and the relatives cannot be charged for it. Clinicians must recognize this problem and give it due consideration when the financial agreements between the pathologist and the small hospital are being discussed.

The general practitioner is often confronted with problems in hematology. Advances in the diagnosis and treatment of the diseases of the blood have been phenomenal during recent years. The pathologist can be of inestimable service because of his knowledge of the peripheral blood picture in the anemias and leukemias. He supplements these studies with those of the bone marrow. Most general practitioners are not trained to do this work and, if they rely on the final judgment of the technician, they will fail to give the patient all that modern medicine has to offer. The treatments of the deficiency anemias and of pernicious anemia are well standardized at present, but a correct diagnosis must be made first unless the clinician is content with "trial and error" methods of treatment.

The development of chemotherapeutic agents and the antibiotics has revived an interest in bacteriology. Even the small hospital laboratory can perform the simpler bacteriological procedures, provided the technician has someone competent to supervise her work. This is also true of serologic tests for syphilis, brucellosis, mononucleosis, et cetera.

Blood transfusion is becoming a routine procedure even in the smaller hospitals. The danger of transfusion reactions can be minimized if the laboratory technician is well trained in the determination of the blood groups and the performance of compatibility tests. These procedures require the use of potent testing sera and a thorough knowledge of the importance of painstaking cross matchings in order that disasters may be avoided. This is particularly true in patients who have had previous transfusions or when female donors are used in whom sensitization to the Rh factor has occurred. It is true that a patient's condition may be so critical that the taking of chances by hurried perfunctory tests of the patient's and donor's blood is justified, but such instances are rare. It is far better to take a little more time and be safe. The practitioner should realize that time is required to do careful work. The pathologist, who is trained in this field, can establish standards of performance in the laboratory under his super-

vision and serve as a consultant when perplexing problems arise. The growth in importance of the Rh factor in blood transfusions, as well as in pregnancy and in the newborn, demands that facilities for its study be available in every hospital regardless of size. This is not a simple problem, as every pathologist will testify. Constant care must be exercised in order that incorrect results are not obtained through lack of training and experience on the part of the technician or because of the impotence of the anti-Rh serum being used. Here again, a pathologist can supervise the work of the technician and unsnarl the difficult problems that invariably arise. Few general practitioners are competent to do so.

From the foregoing I believe we can agree that the average general practitioner cannot be expected to be competent in the field of laboratory medicine and that the pathologist can be of great service to him. However, we have not discussed the availability of the pathologist to the general practitioner, and the willingness of the general practitioner to seek the services of the pathologist. There are approximately 6400 registered hospitals in the United States. About 1600 pathologists have been certified by the American Board of Pathology to date. Of this number many are doing research work exclusively; many are teachers who do a limited amount of actual practice, and a few are engaged in a limited field in the specialty. A small number of pathologists are not certified, either by choice or through inability to qualify. Quite a number of clinicians work in pathology on a part-time basis. From these figures it is apparent that the ratio of hospitals to pathologists is about four to one. The 6400 registered hospitals includes many with less than fifty beds. However, there are a large number of hospitals with a bed capacity of 75 to 150 which do not have the services of a pathologist, even on a part-time basis. The reasons for the shortage of pathologists are numerous. It is true that a different temperament is required of the pathologist than the clinician. Too often medical students and interns have been discouraged from going into pathology because the pathologists with whom they have come in contact have been of the "recluse" type and have not manifested sufficient interest in the patient or in the welfare of the profession. The American Society of Clinical Pathologists has recognized this problem for several years and has taken steps to correct it

through an educational campaign among its own members and also directed toward hospital interns and residents. The recently organized College of American Pathologists is stressing the same program. The greatest deterrent, however, has been the economic insecurity of the pathologist, at least until the past decade, and the reluctance of many clinicians to accept the pathologist as a full-fledged member of the hospital staff. Pathologists in general have done well financially of late, but there still exists a tendency on the part of hospital authorities to exploit the pathologist and to make the clinical laboratory cover the deficits incurred elsewhere in the hospital. Clinicians can help to remedy this situation by insisting that the pathologist be adequately compensated for his work, commensurate with his ability. They can also contribute to his financial security by refusing to patronize commercial laboratories operated by laymen, and by discouraging the use, development and expansion of so-called "free" laboratory services in institutions owned and operated by governmental agencies through tax funds. No one will deny that the public health laboratory has a legitimate function in the diagnosis and control of communicable diseases, but it should not be permitted to offer other diagnostic tests free of charge for patients who can afford to pay for such services. The pathologists of Minnesota and of my state are willing to perform laboratory tests and tissue examinations on any patient certified as medically indigent by his physician provided he is also contributing his services.

Clinicians generally are awakening to the danger of governmental intrusion in the fields of pathology, radiology, and anesthesiology because it may well serve as the entering wedge to a complete socialization of the practice of medicine. Much is being said these days by planners, in and out of government, about "diagnostic centers" and "diagnostic facilities." Ostensibly the purpose is to provide facilities for diagnosis, such as x-ray and clinical laboratories, where they do not already exist. If so limited, they would undoubtedly be of great service to the practitioners located in rural and the smaller urban areas. However, they must be subject to local control, as they may be the means by which an ambitious bureaucracy will gradually encroach upon the practice of medicine. Pathologists are vitally interested in this subject, for they realize that a



government sponsored and subsidized facility may develop into a vast system of similar facilities located everywhere, including those areas which are adequately served by private facilities and thus replace the present system of private enterprise. Clinicians, especially the general practitioners who might be tempted to look with favor on such a form of government subsidy because it promises to offer facilities which are not presently available to them, should scrutinize this movement carefully before endorsing it. Many small communities in the north central states are demonstrating, by co-operative effort, under the guidance of local lay and professional leaders, that they can solve their own problems of providing adequate hospital and diagnostic facilities. More communities should be encouraged to do likewise.

If the number of pathologists increases, and there is every indication that it will, what can be done to locate them where they are needed? The American Medical Association is stressing the importance of the general practitioner in the practice of medicine, and its committee on rural health, with the assistance of the organized farm groups, is co-operating in every way possible to provide more practitioners in the rural areas. The Hill-Burton Construction Act has stimulated interest in the building of hospitals and health centers where they are needed. These facilities will provide the general practitioner with a place in which he can care for a large majority of his patients. But what about the supply of nurses, technicians, anesthetists, and especially pathologists? The answer would seem to lie, so far as the pathologist is concerned, in a coordinated network of health centers, rural hospitals and district hospitals, in which the pathologist would have his headquarters in the district hospital. He would supervise the laboratory work in the rural hospitals and health centers through regular visits. With modern methods of transportation the pathologist could answer emergency calls within an hour or two. Perfection of such a system would place the pathologist within easy reach of the practitioner, and those tests, including the

preparation of tissues for diagnosis, which are not performed in the smaller laboratories, would be done in the central district hospital laboratory. This plan conforms to the general outline of the federal government's planning. The details of finances would have to be worked out, but this would be relatively simple if all concerned, including the practitioners and the hospital authorities, agree that the pathologist is a physician and must be adequately compensated for his services if he is to remain in the area. If successful, the plan would result in better medical service in the rural and small urban areas, where the clinical work will undoubtedly be performed, primarily by the general practitioner.

It is a common observation that the level of medical practice in a community is dependent, to a large degree, upon the quantity and quality of pathological service available. Decentralization, rather than centralization, is the present emphasis, and the general practitioner is the key figure in this movement. He must have every assistance possible, in order that he may offer his patients the very best in medical service. The pathologist can play an important role in this development. However, the practitioner must appreciate his worth and his ability to contribute to the practice of scientific medicine, and he must desire his services. In the final analysis the practitioner has the patient; the pathologist has only his ability to serve when called upon by the clinician. It is the earnest desire of pathologists to join in a co-operative effort with practitioners everywhere in order that all the people may enjoy the benefits of modern medical practice. We are all practitioners of medicine. We are all dedicated to the prevention of disease and the relief of suffering. United we cannot, we will not, fail to fulfill our mission and to preserve our heritage of a free and unfettered profession.

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## RADIOGRAPHIC EVIDENCE OF INTERMITTENT PROTRUSION OF AN INTERVERTEBRAL DISC

### Case Report

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**I**NTERMITTENCY of symptoms of backache and the sciatic syndrome, produced by ruptures of the intervertebral discs, is one of the characteristics of these cases. Relief of pain has often been effected by manipulation or postural changes. Macey<sup>1</sup> speculated on the probability of reduction of the prolapsed nucleus into the intervertebral space in these patients with intermittent pain.

The following is a case report showing this phenomenon.

The patient, a white woman, age thirty-nine, had had episodes of back and left leg pain for five years. The present siege was initiated by lifting her small child a few days before hospitalization, when she felt "something snap in her back," followed by inability to move for a short while and continued back pain radiating down the left leg. During the next few days she received relief of pain for periods up to several hours after chiropractic manipulation, followed by recurrence of pain, more manipulation with pain relief and then further recurrence.

She was admitted to St. Luke's Hospital on February 8, 1948, complaining of back pain with radiation to the left leg and some twitching of the lower leg muscles and numbness in the toes. Her remote past history was non-contributory, as were the general physical examination and routine laboratory tests. The knee jerks were present; the ankle jerks were absent. Straight leg raising produced pain at 45 degrees on the left, with an area of hypesthesia on the dorsum of the foot extending to the great toe.

Following the use of extension applied to the left leg for forty-eight hours, an opaque myelographic examination was made. Preliminary radiographic study revealed bilateral spondylolysis between the fourth and fifth lumbar segments and Grade I spondylolisthesis at the lumbosacral joint, with isthmus defects at these levels. Using 5 c.c. pantopaque intrathecally, later removed, a rare observation was made fluoroscopically and recorded radiographically. With the patient prone and the left side raised, no appreciable abnormal findings were seen on the first caudal excursion of the media. On the second excursion with the patient standing on her left foot, pain suddenly became manifest and a classical extradural defect in the column of media, characteristic of protrusion of an intervertebral disc, became apparent at the level of the lumbosacral joint on the left side.

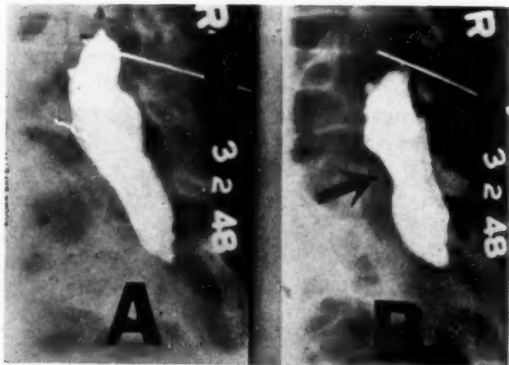


Fig. 1. (A) The pantopaque-filled lumbosacral subarachnoid space, with patient lying in a prone position with the left side slightly raised, revealing normal myelographic findings. (B) An extradural defect (black arrow) due to protruded intervertebral disc, which finding occurred after the patient experienced pain during the examination.

Figure 1A shows the radiographic findings before pain and Figure 1B after the pain. It was felt that the deformity was due to protrusion of a ruptured intervertebral disc rather than to any change caused by the spondylolisthesis.

On March 8, 1948, an operation for removal of the ruptured intervertebral disc and spinal fusion was performed by one of us (C.C.C.). A protruded intervertebral disc was found on the left side between the last lumbar and first sacral segments and was removed, and fusion from the levels of the fourth lumbar to the first sacral vertebrae was effected with bone grafts taken from ilium. Convalescence was uneventful, and the patient has had no further back pain.

### Comment

It is probable that the spondylolisthesis and spondylolysis contributed to the mobility of the protruded disc, to the intermittent character of symptoms and to the relief obtained by manipulation in this case. Fairly good radiographic evidence, however, has been produced to show that intermittent protrusion of a ruptured intervertebral disc does occur, accounting for a cause of intermittent symptoms.

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Read before the Ramsey County Medical Society, Saint Paul, Minnesota, April 25, 1949.

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# History of Medicine In Minnesota

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## MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

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*"History is the essence of innumerable biographies."*

*Thomas Carlyle (1795-1881): On History*

The first to record the general history of Olmsted County, Minnesota, it is believed, was William H. Mitchell, a newspaper publisher of Rochester, who in 1866, after several years of research and compilation, brought out his *Geographical and Statistical History of the County of Olmsted, together with a General View of the State of Minnesota, from the Earliest Settlement to the Present Time*. The history is a paper-bound booklet of 121 small pages, to which are affixed some eighteen pages of regional advertising, with lists of lawyers and physicians of Rochester.

In glowing phrases Mitchell described the beauty and promise of this county of some 650 square miles, most of it tillable, whose mean elevation is 1180 feet; the warm black soil, deep and rich; the gently rolling prairies and the lush meadows; the abundant waters of the Zumbro,\* Root and Whitewater Rivers, of Cascade, Bear and Silver Creeks and lesser tributaries, and of ever-flowing springs; the picturesque bluffs and rocky dells along the water courses; the varied timber bordering the streams, the upland groves and, in the northwestern part of the county, the heavy hardwood growth that locally was called the "Big Woods." He pictured vividly the blue distances, the incomparable summer verdure and bloom, the native fruits, the gorgeous autumn coloring, and the wild animal life that contributed to the food supply of the early settlers, and he stressed the moderate climate and exhilarating atmosphere. "Perhaps the eye of man never rested on a spot of earth which for fertility of soil, beauty of landscape and healthfulness of climate and location, was better fitted to meet his material wants, and to supply the necessities of his nature, since shut out from the original Eden." He continued:

Looking backward for only a few short years, and we see no signs of civilization, neither of habitation, save the wigwams of the red men and their trails as they make their way to their hunting grounds farther west, their council fires, and their bark canoes gliding over the water of the various streams, and we have a truthful picture of Olmsted County as it was previous to 1854, ere the hand of civilization had disturbed its wilderness and primitive state. Today we look again. Twelve years have passed away, and behold what a change. The magic wand of civilization has been waved over the broad prairies and openings, and art, science and commerce, combined with the real western energy, have covered the wide expanse with cultivated fields and golden harvests; have made roads and built bridges, and dotted the prairies with pleasant dwellings, busy villages and the bustling city.

Mrs. Guthrey was a member of the Editorial Department of the Mayo Clinic, 1916-1919, and personal secretary and assistant to the late Dr. William James Mayo, 1919-1939.

\*The name of the Zumbro River is a corruption of "La Rivière des Embarras," meaning river of hindrances, which was given this stream in Wabasha County by early French explorers because floating driftwood hindered their canoes. Early spellings of Zumbro were *Zombro* and *Zumbra*. In Goodhue County the Sioux Indians early called the Zumbro River "Wazi Oju," meaning "planted pines," because of a grove of large white pines on its banks near the site of the present village, Pine Island.

## HISTORY OF MEDICINE IN MINNESOTA

Olmsted County, once part of the original great Wabasha County, which was established on October 27, 1849, and which comprised most of southeastern Minnesota, was created by act of the territorial legislature on February 20, 1855. The first meeting of the county commissioners was held at Oronoco on August 27, 1855. The county was named for the Hon. David Olmsted (1822-1861), who was an early and important figure in Minnesota history. A native of Fairfax, Vermont, David Olmsted in 1844 came as an Indian trader to Iowa and in the next two years was instrumental in drawing up a constitution for state government of Iowa. In 1848 he established a trading post in Todd County, Minnesota; in 1849 he became a member of the council of the first territorial legislature and was president of the legislature at its first session. Subsequently he settled in Saint Paul, where he founded the *Minnesota Democrat*; in 1854 he was the first mayor of the city. A year later he removed to Winona; soon afterward, his health having failed, he returned to Vermont, where his death occurred.

Olmsted County is in the second tier of counties above the Iowa line and is bounded on the north by Goodhue and Wabasha Counties, on the east by Winona County, on the south by Fillmore and Mower Counties, and on the west by Mower and Dodge Counties. Its eighteen townships, each of eventful history, were organized in the period between May, 1855, and May, 1859. They are listed here in four tiers from south to north, the individual townships from east to west: (1) Elmira, Orion, Pleasant Grove, High Forest and Rock Dell; (2) Dover (originally Whitewater), Eyota (originally Springfield), Marion, Rochester and Salem (originally Lexington); (3) Quincy, Viola (originally Washington), Haverhill (originally Zumbro, then Grant, then Sherman), Cascade and Kalmar; and (4) Farmington, Oronoco and New Haven. Olmsted County owes its deviation from rectangular shape to the fact that, for political reason, soon after organization of the county, two townships in the northeastern corner were detached and given to Wabasha County, and that on May 22, 1857, a strip of land one mile wide and twelve miles long, comprising Sections 1 to 6, inclusive, in Township 104, Ranges 14, 15 and 16 in Mower County, was attached to the southwestern corner of Olmsted County, forming part of High Forest Township and bordering Rock Dell Township on the south. For many decades after its transfer to Olmsted County this addition was known as the "Mile Strip" or the "Panhandle."

In recent articles (Guthrey) on early medicine and its practitioners in Houston and Fillmore Counties, there was given brief description, which is not repeated here, of conditions of living in southeastern Minnesota during the early decades of the nineteenth century, beginning with the first penetration of the region by white men and touching on the opening of navigation on the Mississippi River and the first fringe of settlements along the river; the establishment of the territorial government, followed by treaties with the Indians and opening of regional federal land offices; and the trickle of immigration westward that by 1854 had become a tide.

Settlements sprang up in Olmsted County, created by pioneers of all types, classes and occupations and of various nationalities, who came to the land of hope intent on realizing economic independence and, many of them, improved social condition. Although many of the townships of the county were settled largely by Scandinavians, others by Germans, and lesser localities by Irish, in the influx of immigration, which continued unabated well into the late sixties, Olmsted County received a larger proportion of English than did near-by counties. Many of the English came directly from England and many more from New England. New England, it has been said, furnished the ferment that did much to Americanize



the diverse peoples who settled the county. Some of the physicians who came from New England were among the best educated of the pioneers for citizenship and for their profession. Many of them spoke several languages; some of those from northern Vermont were well versed in French, having learned the language in preparation for practice among the French who had come into Vermont from Canada. Relatively few of the pioneers, of whatever descent, except those who came as part of certain groups of colonists that had been organized in the East or in Europe, made an unbroken journey from the Atlantic States to Minnesota. The recurring note in biographical accounts has been of gradual westward travel. A typical family history tells of removal from New England to Pennsylvania, to Ohio, to Illinois, and on to Wisconsin, before final settlement in Minnesota. Most of the pioneers traveled in covered wagons drawn by oxen, and the newspapers of Rochester and other settlements commented enthusiastically in each issue, well into the seventies, on the fleets of prairie schooners that daily were passing through, carrying families who were bound for prairie farms. The influence of all nationalities is apparent in names given to villages, townships and topographical features.

Although one history (1883) mentions a pioneer clergyman in the future Olmsted County as early as 1850, an accepted account is that late in 1852 or early in 1853 Jacob Goss settled on land in what was to become Pleasant Grove Township. There came into the region before him, however, in the spring of 1852, a little band of explorers from Wabasha Prairie (Winona) led by Dr. John L. Balcombe. This physician of the regular school, never a resident of Olmsted County, made such expeditions an avocation, it is said, and his habit of close observation, together with a photographic memory for topography, gave him an especial advantage. On the trip in 1852 he discovered and located as a timber claim the site of High Forest Village in High Forest Township. It was not until March, 1854, that he again guided to this spot some of the men who formerly had accompanied him and sold them his rights; these men, soon followed by other pioneers, founded the permanent settlement. Other communities were established in 1853 and 1854 in various parts of the county, and from then on the work of settlement and improvement was rapid. Trails and roads were opened and mail service was established. Stagecoaches, drawn by four horses or more, had their long term of vital usefulness, during which numerous inns, at crossroads and in settlements, offered hospitality to man and beast. The Old Territorial Road between Dubuque and Saint Paul crossed the county, passing through Pleasant Grove, Rochester and Oronoco. By 1864 the railroads were coming into the county, at first supplementing the stagelines and eventually supplanting them. Olmsted County, like its neighbors, has its phantom villages, most of which are the remnants of settlements that sprang up in those early years around millsites or other vantage points. When natural water power diminished in the course of years, or when the railroads left the ambitious villages to one side, they became ghost towns.

The site of Rochester, the county seat, in Rochester Township, received its first settlers in the spring of 1854, in what became North Rochester. In the same season a band of surveyors staked a claim near the falls of the Zumbro River, a cascade that they called the Falls of Wazi Oju; a few weeks later this claim was jumped by pioneers seeking a location. In that summer George Head named the settlement Rochester, after Rochester, New York, and it is said that he established the main street, Broadway,<sup>†</sup> by having a log dragged through the

<sup>†</sup>In this history the names of streets in Rochester are the original names, unless otherwise stated. About 1919, for the convenience of transient visitors who found the unrelated names of streets and avenues confusing, the city was divided into sections, Northwest, Northeast, Southwest and Southeast, and most of the streets and avenues were renamed numerically and geographically in each section. The streets run east and west, the avenues north and south. Broadway retained its name.

hazel brush by an ox team. The first celebration of the Fourth of July in the county was held in Rochester in 1854 by the three adults and the two children then resident there. Rochester was platted in October, 1855. In that year Dr. Jesse N. McLane, of Rochester, was appointed the first register of deeds of the county, and in 1856 Dr. Ira C. Bardwell, also of Rochester, became the first clerk of the district court. Rochester became the county seat in the spring of 1857, winning the honor over Oronoco and Marion in a hard fought political contest, and on August 5, 1858, it was incorporated as a city.

Olmsted County kept step with the neighboring counties in all matters of settlement and civic progress, in establishment of businesses and manufactories, and in founding newspapers, churches and schools. In Rochester, strange to say, there was apathy about public schools; the only schoolhouse of the settlement for several years was a little log house, which doubled as a public meeting house, east of the Zumbro River. By 1861, however, the city was redeeming itself in this respect, and in the next twenty years it achieved not only excellent and ample public schools, largely through the influence of local physicians, many of whom served in turn on the board of education, but had a numerous succession of private "select" academies and seminaries. Of the private schools the Rochester English and Classical School or "Niles Academy," of Professor and Mrs. Sanford Niles, endured longest and had well-deserved prestige. Most of the local young people of the late seventies who aspired to education higher than the rural schools and the Rochester High School could offer, were at some time pupils at Niles Academy; many of the young men became merchants, lawyers or physicians in the county or elsewhere.

Rochester might have been a college town. In 1870-1871, when Hamline University was about to leave Red Wing and made overture to Rochester for a site of ten acres and financial aid to erect a building costing \$75,000, the city, in spite of the earnest efforts of a few citizens of vision, among them Dr. W. W. Mayo and Dr. E. C. Cross, rejected the opportunity in order to avoid increase in taxes.

Once aroused to educational and cultural needs, Rochester in the early sixties organized a library association, in which Drs. E. C. Cross, E. W. Cross and W. W. Mayo and prominent lay citizens were active, and instituted a course of lectures open to the public. There were brought to Rochester public speakers, artists and scientists notable in their day, among them Dr. A. L. Sperry, of Carleton College, who talked on physical science, and the eminent Wendell Phillips, Roger A. Pryor, E. P. Whipple and E. L. Youmans. A Negro contralto, "The Black Swan," came, as did Ole Bull, the great Norwegian violinist. When outside talent was not available, local citizens who had a varied fund of information and a bent for public speaking lectured before various groups; among these early speakers were Drs. J. A. Leonard, W. W. Mayo, L. H. Kelley, Hector Galloway, E. C. Cross and E. W. Cross. Perhaps not sponsored by the Library Association were Jane G. Swisshelm, Phoebe Couzens, Mary Livermore, Elizabeth Cady Stanton and Susan B. Anthony, all of whom spoke on women's rights. In certain villages of the county also courses of lectures were organized, and Dr. Alexander Grant, of High Forest, was a speaker and patriotic orator much sought. There was occasional entertainment. The famous dwarfs, Colonel Tom Thumb, Lillie the Fairy Queen, Commodore Nutt and Minnie Warren were heralded, and there were miscellaneous phrenologists, magicians, ventriloquists and clairvoyants, traveling theatrical troupes and "gigantic" circuses, over a long period. The audiences were drawn from all over the county.

A rapidly moving epochal film of the county from 1854 would show wandering bands of Sioux Indians, puzzled by enforced removal of their tribes westward,

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who lingered in the county, especially in and around Rochester. Between 1854 and 1856 they occasionally camped 200 strong in favorite sites on the banks of the Zumbro and struggled in groups through the settlement, pressing their faces against the windows of the pioneers' cabins and then stalking in to demand, or to take, food. Perhaps the first practitioner of medicine in Olmsted County was their medicine man, Muzomoney. In the autumn of 1854 a disease believed to have been smallpox broke out among the Indians. When a squaw died, Muzomoney said that she had eaten some honey and with it had swallowed a bee, which stung her in the throat or in the stomach and killed her. Her body was placed in the old Indian burying ground on Indian Ridge north of town; vestiges of Indian skeletons were found there until the cyclone of 1883 swept away all macabre remnants. Other incidents of illness among the Indians have been recounted. The last red men known to have passed through the city were some Winnebagoes who in 1862 camped on Zumbro Street near the site of the present county court house.

A Golden Era would be flashed on the screen. In 1858 gold was discovered along the Zumbro River at Oronoco and at Rochester. The Oronoco Mining Company was organized, and sluices and equipment were installed at Oronoco. Enough gold was recovered for Mr. Eleazer Damon, pioneer jeweler of Rochester, to make a set of waistcoat buttons for Dr. E. C. Cross and to fashion several wedding rings before flood waters washed away the sluices and ended the enterprise. A little later marl and peat were discovered not far from Rochester, and oil was proclaimed at High Forest. Nothing notable came of these discoveries.

Attention could be given to native products of healing value, real or supposed. In the fifties and sixties, and much later to some extent, the gathering of the fleshy, bifurcated ginseng root became a minor industry in southern Minnesota, chiefly in the region of the Big Woods, but also in the southeastern counties. Whole families, to eke out their income, devoted time and effort to gathering ginseng, of supposed medicinal value, for sale to local dealers, usually druggists, for export east and to China. By the sixties the common snakeroot, of the milkwort family, of proved medicinal worth, became the object of interest locally for its commercial value. The *Rochester City Post* on August 1, 1863, said:

"A medicinal plant, the Seneka Root (*Polygala senega*) has become quite an article of export hereabouts. J. D. Ameigh and Co. of this city have, during the month of June last, purchased and shipped upwards of 800 pounds of this article, designed for use in eastern cities, in the preparation of expectorants and cough remedies. The price paid for use in eastern cities has been from 50 to 60 cents per pound, and in some seasons readily brings from 75 cents to \$1 per pound. This plant grows everywhere throughout our fields and pastures, is easily gathered and prepared for market, and with the inducement that Messrs. Ameigh and Co. intend to offer next season the Seneka trade will bid fair to outrival the ginseng excitement of the 'Big Woods'."

About a product of another sort, a story in 1909 called attention to a bed of "medicated clay" near a medicinal spring in West Salem Township. It was said that the Indians had been frequenters of the spot in earliest years and that they had taught the pioneer settlers the uses of the smooth, oily-feeling clay in curing swellings, rheumatism, inflammation and bee stings.

A picture could be shown of the streets of Rochester thronged with men in army blue. During the Civil War, Olmsted County sent to the Union Army 1,250 men from its total population of 12,000. All the villages and rural communities were represented. There were, for example, the Oronoco Guards and the Dover Guards, the Olmsted County Tigers and the Olmsted County Volunteers, and Sanborn's Guards, of which lesser groups became part. The service of men

from Olmsted County, laymen and physicians alike, in different regiments of Minnesota is a matter of official record. Some of Rochester's physicians played useful parts. Dr. L. H. Kelley offered his professional services free of charge for the period of the war to the wives and children of men in the armed forces from Olmsted County. Dr. Hector Galloway, of Oronoco, was an organizer of the Oronoco Guards and in 1864, then in Rochester, became surgeon of the Thirteenth Regiment, Minnesota State Militia. Dr. E. C. Cross helped to organize the Olmsted County Volunteers and was chosen to tender the services of the company to the governor of the state. Dr. E. W. Cross went to war in 1861 as assistant surgeon of the Fourth Regiment of Minnesota Volunteers and in 1863 became surgeon. When the Enrollment Board of the First Minnesota District was established in 1863, with headquarters in Rochester, Dr. W. W. Mayo, who had seen service in defence of New Ulm against the Sioux Indians in August, 1862, came to Rochester in April, 1863, on appointment as surgeon to the board. In this work Dr. Galloway shared, as did Dr. E. C. Cross, who succeeded Dr. Mayo on the board in 1865. Throughout the war the local newspaper lauded the patriotic, inveighed against laggards, deplored the "shinplaster nuisance" and called for new postal currency, and praised women for sending boxes of food and clothing to military hospitals for the benefit of the wounded. The Red Cross Society was to come to Olmsted County much later, as will be shown. The headlines, especially about women at work in fields and offices and stores (office work and salesmanship were daring undertakings for women in those days), except for dated rhetoric, could be those about women at work during World War II. All the regional press abounded in notices to soldiers and to the widows of deceased soldiers from agents who made a business of collecting bounties, back pay and pensions. Long after the war was over, the blue of the Union Army was a familiar sight; the uniforms, the long-visored caps, the long coats with shoulder capes, were casually combined with civilian clothing by men on the street or at work in the fields.

The picture would have a background of fertile fields. Olmsted County always has been primarily devoted to agriculture, stockraising and dairying, and it early won its title as one of the great food baskets of the "bread-and-butter" state. Fruit trees that could withstand the climate were imported. Farmers year by year expanded their wheat fields. The farmers most able financially brought in fine breeds of hogs, sheep, cattle (beef and dairy), and blooded horses (draught animals, roadsters and racers) from within the United States and from Europe. From the beginning, most of the established physicians of the county owned fine farms and were distinguished for their horses, especially the roadsters that were vital to transportation in medical practice, and, some of them, for their racing stock. The county fair was instituted early, featuring livestock, agricultural and dairy products and the domestic arts, with the usual contests and amusements. For several years in the sixties and again in 1882 the Minnesota State Fair was held at Rochester. In 1870, in a running race for boys, Maitland E. Cross, son of Dr. E. W. Cross, and William J. Mayo, son of Dr. W. W. Mayo, won first prize and second prize respectively; Leonard, in his county history of 1910, said about this event, "This was the only instance in which Dr. Mayo has been known to come out second best." The coming of fine livestock brought cattle thieves and horse thieves, who long caused much trouble. The county anti-thief society was formed in 1863. All communities were aroused. The Viola Anti-Horse-Thief Society, organized in 1874, functioned long after the turn of the century.

As agriculture became established, the abundant native growth of hazel nuts, wild plums of exceptional size and flavor, and the superior wild strawberries that covered large areas began to disappear. The wild animals, some of them per-



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nicious, more of them gentle and harmless, were exterminated. The skins of wolves and wildcats brought bounties. Deer soon were unknown; the last elk seen in the county was shot in 1859 a mile or two from Rochester. The vast flocks of prairie chickens, the prairie sharptailed grouse, whose drumming or booming was the first sign of spring, soon diminished. There was a time, an old settler has said, when these birds were so tame that they perched on fences near farmyards "looking, with their feathers puffed out, as big as turkeys." Their nesting grounds became plowed fields, and the birds, trapped and hunted, became so scarce that in 1876 the editor of the *Rochester Post* declared that the county had become too old and too highly specialized for first rate chicken shooting. The beautiful passenger pigeons met tragedy in this region. Like mourning doves, but much larger and more brightly colored, they came annually in May and June, in their flight day after day filling the sky from southeast to northwest and darkening it from horizon to horizon, returning to their nesting places or "roosts," which extended for miles in the woods in various parts of the county.\* Although the birds were doomed, they returned in vast flocks to Goodhue, New Haven, Chatfield, and Pleasant Valley (west of High Forest) as late as 1873. In 1877 a Rochester editor said that the wild pigeons were "almost as numerous as the pigeon hunters"; after that year they were mentioned seldom, if at all, in the Rochester press. Strangely enough, when the passenger pigeon was forever gone from Olmsted County, there arrived the ubiquitous English sparrow, in Rochester in January, 1887, and thereafter, the newspapers reported annually for several years, "came out as bright and quarrelsome as ever."

The population of Olmsted County, from a sparse scattering of settlers in 1854, increased rapidly until in 1865 it was 15,178, comprised of 8,019 males and 7,159 females; there were 2,711 families. In 1865 the largest individual annual income in the county was \$5,000, and the average income of the best established citizens, in business, in law and in medicine, was about \$1,000. The county census of 1870 was 19,700, in 1875 it was 20,940, and in 1880 it was 21,553. Thereafter there was some fluctuation until, after the turn of the century, steady growth began. In 1900 the population was 23,149, with about one-third resident in Rochester. Rochester by 1858 had 1,500 residents; in 1874 it was a city of 5,000, described as being in the interior of a new state on the frontier of a new country. By 1896 the population was 6,000 and for some years, until after 1900, it remained at about that figure. In 1947 it was nearing 30,000.

\*The writer is indebted to Dr. E. A. Hagaman, of Rochester, for the privilege of reading the memoirs. *At the Turn of a Century*, of the late Charles Nicholas Ainslie, several times quoted in this history. In that book Mr. Ainslie gave a vivid account of the flights of the passenger pigeons, of the birds alighting in wheat fields, and of the wanton slaughter of adult birds and squabs by hunters who from dusk to dawn thronged the woods that were the roosts. A son of the Rev. George Ainslie, Indian missionary and the first Presbyterian minister in Rochester, in 1861, Charles N. Ainslie spent his childhood and early adult life in Rochester. From 1906 to 1930 he was a member of the Federal Bureau of Entomology in Washington, D. C.

(To Be Continued in August Issue)

# President's Letter

## WHO WANTS TO KNOW?

A very popular medical science writer, Steven Spencer, associate editor of the *Saturday Evening Post* said recently, with insight and truth, "The private practice of medicine is much more medicine and much less private than it was ten or fifteen years ago. The doctor, striving to familiarize himself with and to evaluate the parade of new drugs and techniques, finds an eager public looking over his shoulder—and sometimes breathing down the back of his neck. Etiology, diagnosis and therapy no longer form a mystic trinity of knowledge to which only the medical profession has access and which the patient must accept on faith."

I think that we doctors have come to recognize and co-operate with the public's desire for medical knowledge and, perhaps belatedly, we realize the power of an informed public in dispelling socialized medicine propaganda.

We have feared overly optimistic reporting of medical advances; we have, with some justification, been apprehensive about mistakes and distortions of medical news. But medical journalism has advanced a long way since 1494, when, it is believed, the first medical news story was printed. A number of journalists have specialized in this field, training themselves to be scientifically accurate, yet phrasing material in lay language. Alert editors are working to slake this general thirst for medical knowledge.

As one Minnesota newspaper editor wrote in his paper last month: "What every newspaperman would endorse would be a working arrangement between the medical profession and the press. Every newspaperman worthy of the name receives and respects confidential information. Every doctor becomes a receptacle for professional secrets known only to his patient and himself. When two agencies, medicine and press, both of them allied to the high principles of confidence, could correlate their work on a non-personal basis, mutual good would result. This . . . is an opportunity for public relations at its highest level."

The Minnesota State Medical Association has scored some noteworthy advances this year in furthering a close relationship between doctors and journalists, for the good of the two professions and the public.

The State-Wide Medical Press Conference brought editors and doctors together to discuss mutual problems. Now, by individual and group effort, these problems are being resolved. The House of Delegates, meeting in annual session at Saint Paul, erased an old area of misunderstanding when it approved a program of ethical advertising by doctors and medical societies. While the income from such advertising probably will not be appreciable, newspapermen recognize the resolution for what it is, a genuine interest in working with the press. County medical societies would do well to devise ethical advertising programs, along the lines suggested by the House of Delegates, as well as to demonstrate an increased awareness of medical responsibility for informing and educating the public.



President, Minnesota State Medical Association

# Editorial

CARL B. DRAKE, M.D., *Editor*; GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

## DOCTOR FISHBEIN TO RETIRE

ONE OF THE most publicized events of the AMA convention at Atlantic City in June was the announcement by the trustees that Dr. Morris Fishbein, editor of the *Journal*, is to be gradually relieved of his duties. The announcement came as a surprise to most members of the House of Delegates, the profession at large and the public in general. The name of Dr. Fishbein has been closely linked with the AMA since 1924 when he became editor of the *Journal*, and his many public appearances have led to the impression that the AMA and Dr. Fishbein are synonymous. Perhaps that is why he has aroused so much antagonism within the ranks of the association, which ultimately led to this action on the part of the trustees.

Dr. Fishbein began his medical career in the office of the AMA soon after his graduation from medical school. Under the tutelage of Dr. George H. Simmons, who was not only editor of the *Journal* but general manager of the AMA for twenty-five years preceding his resignation in 1924, Dr. Fishbein received his training in affairs of the organization, acting as assistant editor. In 1924 the administration affairs of the association were divided, Dr. Olin West being made general manager, Mr. Will C. Braun, business manager, and Dr. Fishbein, editor. *Hygeia* was having tough sledding in 1924, and in 1925, Dr. Fishbein was appointed editor also of this lay medical journal and he made a success of it. For one who claimed to have had no natural literary ability this was a large order. He at one time remarked that while in college he was asked by a professor what he intended to do after graduation and was warned he would never be able to write. As a result of practice he trained himself so that he became not only a voluminous writer but an eloquent orator and an authority on medical writing. Although technically only an editor in the national organization, it was he who was chosen to represent the AMA and address lay and medical meetings. That he was outstanding as an entertain-

ing and informative speaker, those who ever heard him can testify. His able services to the AMA in its scientific and organizational spheres have been invaluable. It will take two or three men of no mean ability to supplant him. Dr. Austin E. Smith, secretary of the Council on Chemistry and Pharmacy of the AMA, is slated to succeed Dr. Fishbein as editor of the *Journal*. Dr. Fishbein's successor as editor of *Hygeia* has not yet been announced. Since February, 1949, Dr. Fishbein has been one of the chief editors of *Excerpta Medica*, the monthly abstract journal of the medical journals of the world, published in Amsterdam since 1947. As if he did not have enough to occupy his time without this additional appointment!

One who has followed the daily activities of Dr. Fishbein as recorded in "Dr. Pepy's Diary" must have been impressed by the strenuousness and variety of his activities in recent years. Many will miss his guidance in the selection of books. That any human being can stand up under such a load without wearing out at an early age is inconceivable. Possibly his retirement is a godsend in disguise.

In any event the medical profession owes a great debt of gratitude for the phenomenal service Dr. Fishbein has given American medicine, and for this reason we are expressing our appreciation.

## EXTENSION OF SOCIAL SECURITY

THE PROFESSION has not been unmindful of the proposed legislation being seriously considered by Congress for the extension of social security to include the self-employed doctors, dentists, lawyers, druggists, butchers, bakers, et cetera. The bill, H.R. 2893, now being considered by the House Ways and Means Committee, is about to be submitted to the House of Representatives for debate. It provides in brief for a tax of 2.5 per cent on the first \$4,200 or \$4,800 of income of all self-employed persons for old age insurance. This would amount to \$120 a year if

the figure of \$4,800 is used, with the likelihood that the rate and base will soon be raised. At the age of sixty-five a physician would have to give up his practice if he wished to collect \$25 to \$50 a month. If he were earning at sixty-five as much as \$14.99 a month, he would be ineligible for the government annuity even though he had paid his taxes for thirty-five years. Even if a physician continues to earn after sixty-five, he will be forced to pay his social security tax for old-age insurance benefits he is not likely to collect. What physician would voluntarily take out a policy, paying \$120 a year during his years of practice with the probability only of a return of \$50 a month after sixty-five if he quit practice entirely? The farmers have been so vociferous in their denunciations of such a proposal that they are to be excluded. Their votes count.

Another feature of the bill is that its increase in scope includes the domestic and gardner. The employer will be required to pay these taxes.

The AMA and our State Medical Association have both passed a resolution voicing their disapproval of this legislation. It remains to be seen how much our votes count with a government that needs more revenue.

Much severe criticism has been directed at the government's handling of Social Security. Aside from the fact that it is at present class legislation, funds collected have not been set aside to meet eventual obligations but have been spent by the government, the government substituting non-negotiable governmental interest-bearing bonds to replace the money spent. What happens when the government needs the billions collected and spent to meet the obligations incurred? More taxes obviously. If private business were to withhold a portion of its employee's salaries to hold for the rainy day needs of the employees, and then should spend the money for expansion or otherwise, simply giving its I.O.U. as security, we imagine someone would be sent to the penitentiary for crookedness. Now the proposal is to expand this badly managed Social Security.

In this connection we are reproducing an editorial which recently appeared in the *Chicago Daily News* which shows that others are cognizant of government high finance.

#### Treasury Advertising

A leaflet circulated by the Treasury Department to promote the sale of savings bonds, contains this information:

"Question: Why is the government selling savings bonds?"

"Answer: To keep a financially sound-America as the best insurance for national security."

When a private concern sells its securities to the public it is required to prove to the Securities & Exchange Commission that it is disclosing the full truth about its financial condition, from which the soundness of its management may be judged.

It is highly improbable that the SEC would approve of new bond selling by an organization already spending beyond its income and whose managers were clamoring for more expansion.

The representation that the way to a "financially sound America" is in the sale of bonds, rather than in prudent management of resources, is impudent hokum. U. S. bonds are a thrifty buy for the average small investor, but not for the reason given by the Treasury.

That there is some recognition of the fact that the federal government cannot go on indefinitely extending the scope of federal taxes and withal spending more than its income is indicated by an editorial which appeared June 20, 1949, in the *Washington Daily News*. Reference is made to a speech made June 18 by James F. Byrnes at Washington and Lee University in Virginia. Besides being a former senator from South Carolina and member of the Supreme Court he was appointed Secretary of State by President Truman two months before V.E. Day. He said in part:

"Every segment of society is demanding special privileges. Too many people want more pay for less work. Too many people are trying to transfer power to the government.

"We are not only transferring too much power from the individual to the government, but we are transferring too many powers of state governments to the federal government.

"Where we will wind up, no one can tell. But if some of the new programs seriously proposed should be adopted, there is the danger that the individual, whether farmer, worker, manufacturer, lawyer or doctor, soon will be pulling an economic oar in the galley of the state "with" the federal government regimenting our lives from the cradle to the grave.

"Our first line of defense is a sound, solvent American economy. The only wise course is to reduce expenditures and live within our means."

And he went on to advocate that government spending for purposes other than fixed obligations and national defense should be cut or deferred. This from the man who was most effective in steering New Deal measures through Congress during President Roosevelt's administration is the more remarkable and merits serious consideration.

We urge every reader to write to each member of the House Ways and Means Committee listed below, voicing his disapproval of the proposed extension of



## EDITORIAL

Social Security to include the self-employed. Personal letters count fully as much as society resolutions.

### Democrats

Robert L. Doughton, N. C.  
Jere Cooper, Tenn.  
John D. Dingell, Mich.  
Wilbur D. Mills, Ark.  
Noble J. Gregory, Ken.  
A. Sidney Camp, Ga.  
Aime J. Forand, R. I.  
Herman P. Eberhart, Pa.  
Cecil R. King, Calif.  
Thomas J. O'Brien, Ill.  
J. M. Combs, Texas  
Hale Boggs, La.  
John A. Carroll, Colo.  
Stephen M. Young, Ohio

### Republicans

Daniel A. Reed, N. Y.  
Roy O. Woodruff, Mich.  
Thomas A. Jenkins, Ohio  
Richard M. Simpson, Pa.  
Robert W. Kean, N. J.  
Carl T. Curtis, Neb.  
Noah M. Mason, Ill.  
Thomas E. Martin, Iowa  
Hal Holmes, Wash.  
John W. Byrnes, Wis.

synthetic chloromycetin on natives in order to ascertain whether it is as effective as the mold derivative.

In recent years it has been found that the disease known as Rocky Mountain spotted fever is not limited to the Northwest; it is not uncommon in the East, Mexico and South America. The name "spotted fever" is therefore more logical. Vaccination, while of value, is of short duration and requires yearly administration. While para-aminobenzoic acid has proven to be of some therapeutic value in this disease, treatment on the whole has been unsatisfactory. Chloromycetin has proven highly effective in the treatment of this disease.

## CHLOROMYCETIN

**C**HLOROMYCETIN, a crystalline substance derived from liquid cultures of a certain species of streptomyces, has proven to be a valuable addition to the list of antibiotics. The mold was first obtained by Dr. Paul R. Burkholder of Yale from a specimen of soil from Venezuela, and an extract was found to have antibacterial properties. The mold was referred to Parke, Davis and Company where the crystalline form was isolated by Drs. I. R. Bartz and John Erlich and named chloromycetin.

The crystalline chloromycetin is relatively insoluble in water but is well absorbed from the gastrointestinal tract and is well tolerated orally. Found to have rickettsiostatic properties when tested in infected chick embryos, the new antibiotic was found by the Army to be highly efficacious not only against epidemic typhus but also against the rickettsial agents of murine typhus, spotted fever, Q fever, rickettsial pox and several viruses of the psittacosis-lymphogranuloma group. It has also been found to be of value in brucellosis, but not in typhoid fever.

While endemic typhus is not common in the northern part of our country it does occur with some frequency in the South. The epidemic form of typhus is of serious importance in many parts of the globe and in areas where thousands of our troops still are located. Up to the present there has been no known remedy for the disease. DDT proved invaluable during World War II in the prevention of typhus, and vaccination was doubtless of value. The Army is undertaking trial of

## NEW YORK COUNTY MEDICAL SOCIETY AGAIN REVERSES STAND

**W**E MADE editorial comment in our May issue of the opposition of members of the New York County Medical Society to the \$25 assessment and the twelve-point program of the AMA. While in January the majority voting favored the assessment, a later vote showed 432 against and 333 for the assessment out of a total membership of nearly 6,000. Evidently the "agins" turned out in force, for at a later meeting on March 28 with a "huge attendance," the vote showed an overwhelming approval of the assessment and the present policies of the AMA.

That there would be no dissenting voice among the 140,000 physicians in the county on any proposition would be too much to expect. Those who believe that the advantages of the socialization of our economy, including the medical profession, outweigh the disadvantages cannot in all probability be converted. We wish that all such could have had the opportunity of hearing the two Englishmen who addressed the National Conference of County Medical Society Officers on June 5 at Atlantic City. The vivid portrayal of what has happened to the medical practice in England as a result of the program of socialization of medical care, which became effective July 1, 1949, would undoubtedly make some converts. These addresses will doubtless appear in print and should be watched for and read by any who are still unconvinced of the importance of avoiding the mistake that England made.

# MEDICAL ECONOMICS

Edited by the Committee on Medical Economics  
of the  
Minnesota State Medical Association  
George Earl, M.D., Chairman

## BRITISH DOCTOR, AUTHOR DENOUNCE SOCIALISM

A British doctor and a British writer analyzed socialism for the benefit of doctors attending two sessions of the American Medical Association's annual convention at Atlantic City, New Jersey.

Dr. Ralph J. Gampell felt so deeply and bitterly about the socialistic distortion of medical practice that he left his native country, applied for American citizenship and is interning in California to qualify for a license to practice medicine in this country.

In tracing the gradual encroachment of socialistic doctrines, Gampell told county medical society officers the answer to the ever-recurring question of "Why didn't the English doctors do something?"

In the first place, Dr. Gampell pointed out, medical public relations were very bad. "In fact, public relations, vis-a-vis, were nonexistent."

### Pledged to Silence

Secondly, and adding to the debacle, the doctors signed a so-called "security pledge" which enabled the government to keep from the public developments in the move to socialize medicine until four months before the beginning of the program.

Finally, according to Gampell, "British medicine had no alternative."

He explained this statement in economic terms: For nearly forty years a government program to provide medical care on a tax-paid basis had been growing steadily. At first the program included manual laborers whose wages equalled \$1,200 a year. The income limit was increased to \$2,200 and, of course, last year, the plan was expanded to take in virtually every British citizen. With this ever-increasing bulk of panel patients, the monetary value of a doctor's practice rose or fell according to its panel component. According to the British custom of buying and selling practices, loans up to 100 per cent could be made to buy a

practice that had, say, a 50 per cent panel component.

When socialized medicine was announced, doctors were forced by what Gampell termed "bitter economic compulsion" to sign the agreement, for the doctors were faced with the loss of their panel patients, as well as the loss of their investment in a practice. Government spokesmen craftily announced that there would be no more buying and selling of practices, *but the government would reimburse those doctors who signed up to practice medicine according to the new program.*

### Trap Was Economic

The doctors held out until the eleventh hour, Gampell declared, then they capitulated for they had no strength—no unity in the profession, no hope of arousing public sentiment and no financial means to break through the toils of the government's ingenious, dollar-baited trap.

Describing the aftermath of this legislation, Dr. Gampell said, "I have *dealt* with twenty patients in an hour and made thirty-six house calls in a day. If that is medicine, then we're not doctors."

From the standpoint of a layman, albeit a highly specialized, trained observer, Cecil Palmer of London told of the impact of socialized medicine on the British physician and his patient.

"Socialized medicine has revolutionized the status of the doctor and destroyed the relationship between doctor and patient," he stated flatly.

### No Privacy Left

Indicative of the way government medicine operates, he believes, is the manner in which private case records became public property:

"A statutory instrument was issued by the Minister of Health three weeks after his promise of privacy and secrecy, requiring records of diagnosis and treatment of all patients to be made available to local lay councils."

Scoring the propaganda that urged free medi-

cal care for "the common man," Palmer declared, "I don't believe a common man exists."

"The program has tried to strengthen the weak by weakening the strong, and the people of England are now contributing two million, eight hundred thousand dollars a week for *free* medical care."

The quality of this medical care was also a target of the British newspaperman's criticism. "It is not possible to give more than five minutes for the diagnosis and treatment of any one patient."

### WHITAKER AND BAXTER REPORT PROGRESS

Speaking before the Medical Societies Executives Conference, June 8, at Atlantic City, Leone Baxter, general manager of the AMA's national education campaign, said:

"The doctors of America, by taking their case direct to the people in a co-ordinated, nationwide move, have scratched the surface of an adverse, or at least an apathetic, public sentiment—a sentiment which proponents of compulsory health insurance have built and nurtured for years."

"The pattern of your national campaign to get the facts to the people has four main facets," she stated. "Distributing literature carrying medicine's story, organizing and directing speakers' bureaus, originating valid news stories and securing endorsements from public organizations respected for their views."

"Forty great national organizations, encompassing millions of members, have studied the facts and taken formal action against compulsory health insurance," said Miss Baxter, listing as examples, the American Legion, the General Federation of Women's Clubs, the National Grange, the American Farm Bureau Federation, the American Bar Association, the D.A.R., the National Fraternal Congress, the United States Chamber of Commerce and the National Association of Small Businessmen.

"The first emergency is over, because the Truman forces decided to bench their ball carriers for the season," Miss Baxter summarized. "But anybody who thinks that medicine may now relax in the bleachers simply caught the wrong signal! The backfield already is in motion—far ahead of time. The compulsory health insurance advocates announce they are going to make this issue a

major issue in the coming congressional campaigns throughout the United States. They frankly admit that they need to do some groundwork in the congressional districts before they can afford to propose such a bill again."

### FILDES PAINTING TO SHOW UNITY

American doctors have been asked to display the famous Fildes painting of "The Doctor" in their offices, as part of the AMA national education campaign.

Portraying as it does the intangible, but nonetheless valuable, relationship of doctor and patient, the painting has a further significance, it was revealed at the Atlantic City convention. By displaying the poster, American doctors will demonstrate, beyond question, their participation in the struggle against socialization and their unified belief in the freedom of medical practice.

The painting, chosen to keynote the educational campaign, shows Sir James Clark, personal physician of Queen Victoria, caring for the child of a forester in the Queen's service near Balmoral Castle, North Scotland.

Fildes said of his painting: "... an attempt to put on record the status of the doctor, than whom no more noble figure could be imagined—the grave anxiety of the doctor, and the faith of the parents who, almost overcome with dread, stand in the background, trusting the doctor even when their hearts failed."

### TELEVISION AIDS SCIENTIFIC PROGRAM

AMA convention goers, who at the St. Louis session saw operations televised, witnessed another dramatic development in video science at Atlantic City. This time surgical, diagnostic and other medical procedures came on the screen in natural color.

Television was also put to work interpreting x-ray films, thereby increasing the usefulness and accuracy of roentgenograms.

Doctors saw a combination of new techniques when, by television, they observed the use of radioactive isotopes in treating patients. Progress of the isotopes through the body was tallied by means of Geiger counters.

Television programs for the convention were transmitted over a closed circuit, making it impossible for the public to "tune in."

# MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building  
Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

## Minneapolis Laundry Driver Pleads Guilty to Violation of Basic Science Law

*Re State of Minnesota vs. Ralph W. Walsh*

On June 20, 1949, Ralph W. Walsh, forty-six years of age, 2601 Fourth Avenue South, Minneapolis entered a plea of guilty in the District Court of Hennepin County to an information charging him with the crime of practicing healing without a basic science certificate. Walsh was arrested on June 17, 1949, following an investigation by Minneapolis police officers under the direction of Inspector Eugene Bernath. Information had been received by the Police Department that Walsh had stated that he was available for the performing of abortions. An appointment was made with Walsh by detective Don Johnson and policewoman Adelaide Noffke. The parties met at a loop hotel where Walsh offered to perform an abortion for \$75. He had in his possession, at the time, instruments for the performing of an abortion, sulphate tablets and other medicinal preparations. He was immediately arrested and placed in the city jail.

Walsh stated that he drove a laundry truck and for eighteen years had worked for a Minneapolis linen supply firm. Part of the time Walsh had the route that included the Medical Arts Building. He denied that he had attempted to perform any abortions prior to the case in which he was arrested. He stated he wanted to make a "little easy money" and thought this was the way to do it. His career as an abortionist was nipped in the bud through the efficient work of the Minneapolis Police Department. Walsh was sentenced by the Hon. Arthur W. Selover, Judge of the District Court, to a term of one year in the Minneapolis Workhouse, the sentence being suspended and the defendant placed on probation for one year. Judge Selover denounced the defendant for his activities and warned him of the danger of the work that he was about to engage in. Upon being questioned by the Court, Walsh stated that he was born in Minneapolis in 1903, and lived there all his life. He stated that he had always been in the laundry business and had no training in medicine. Walsh stated to the Court that he was glad that he was arrested and that he had been pretty nervous about the whole affair.

## ALL BABIES NOW GET "BIRTH NUMBERS"

In Minnesota, as in every other state, all babies born on or after January 1, 1949, now receive an identifying "birth number," the Division of Vital Statistics announces.

The new national plan for numbering birth certificates will give every American-born child a single identifying number for reference during his life. To illustrate: The first child born in Minneapolis on January 1, 1949, has the birth number 122-49-000001. The first figure 1 designates the United States, the 22 indicates Minnesota. This first section of the whole number was assigned by the National Office of Vital Statistics, which has arranged the states and the District of Columbia alphabetically. The figure 49 refers to the year of birth.

The third part of the birth number, consisting of six digits, represents the consecutive number of births occurring in the state. Blocks of serial numbers have been assigned to Minneapolis, St. Paul, Duluth, and each of Minnesota's eighty-seven counties. Goodhue County, for instance, has the series 131001-133000. A child born in Goodhue County during January, 1949, might have as his birth number 122-49-131005.

## Number Gives Identification

This system will make it possible to determine, from a person's birth number, the country, state, county, and year of birth for that person. Each baby will have his own individual number, and no two will have the same number. Therefore, the birth number will serve as a means of identification.

The birth number system was recommended by the American Association of Registration Executives and the Association of State and Territorial Health Officers. The national agencies now employing serial numbers, such as the Social Security Administration and the Office of Defense, have indicated that they will accept the new plan and discard their old numbering systems, if the plan proves satisfactory in the states. All states adopted the new system as of January 1, 1949, and some states are even adapting it to births occurring before that date.

Each child's identifying number will appear on his birth certificate, which is required for school entrance, working papers, automobile licenses, entrance into military service, marriage, insurance, and Social Security benefits. It is possible that in future the birth number will also appear on a person's Social Security card, driver's license, and other identifying items.—*Minnesota's Health*, March, 1949.

## INGUINAL AND FEMORAL HERNIA OPERATIONS

(Continued from Page 701)

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# Minnesota Academy of Medicine

Meeting of March 9, 1949

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club on Wednesday evening, March 9, 1949. Dinner was served at 7:00 p.m., and the meeting was called to order by the President, Dr. J. A. Lepak, at 8:25 p.m.

There were forty-eight members and two guests present.

Minutes of the February meeting were read and approved.

The President announced there would be election of new members at the April meeting. The scientific program followed.

Dr. Martin Nordland, Minneapolis, reported two cases concerning gastric resection for carcinoma.

Dr. Vernon L. Hart, Minneapolis, presented a paper illustrated with lantern slides and a motion picture.

## RESECTION OF STOMACH FOR CARCINOMA

### Report of Two Unusual Cases

MARTIN NORDLAND, M.D., and MARTIN A. NORDLAND, M.D.  
Minneapolis, Minnesota

**Case 1.**—Mrs. A. S. was an elderly appearing, frail, sixty-four-year-old white woman who came in with the complaint of epigastric distress post cibum, becoming progressively worse for the past twelve months. Associated with this, she complained of decrease in appetite, and a tendency to constipation. She was sleeping poorly and had lost about 12 pounds in weight in the last year. In addition to this, she had noticed an increased bloating, which if severe enough caused abrupt vomiting of clear mucus, not associated with nausea. There was no history of jaundice, hematemesis, or melena.

**Past History.**—Past health had been excellent. There was no history of serious illness, injury, or previous surgery. Systemic review was negative.

**Physical Examination.**—Physical examination revealed an elderly white woman who appeared quite ill. There was no abnormality of the head, neck, or chest. The heart did not appear to be enlarged, but a faint low-pitched systolic murmur was present at the apex. Blood pressure was 160/80 and the pulse was 120. There was a definite mass palpable in the left upper quadrant which was slightly tender. No other organs or masses could be palpated. Rectal examination was negative, as well as examination of the extremities.

**Laboratory Studies.**—Urinalysis was negative; hemoglobin, 12.9 gms. per cent; sedimentation rate, 53 mm. in 60 minutes; blood urea nitrogen, 9 mg. per cent; carbon dioxide combining power, 59 vols. per cent; chlorides, 620 mg. per cent.

X-ray examination of the stomach showed an infiltrative lesion along the lesser curvature in the middle third of the stomach, with associated ulceration. The lesser curvature was somewhat stiffened due to a mass in this area. There was a duodenal ulcer deformity (Fig. 1).

The patient came to operation on October 26, 1948, at which time a total gastrectomy with an esophago-duodenostomy was done. At the same time, a large cyst was removed from the tail of the pancreas; and, in doing the procedure, it was found necessary to remove the spleen because of the mechanics of the procedure involved.

The stomach contained a pale, hard ulcer, 5 by 5 cm. and 3 mm. deep, on the proximal portion of the lesser curvature, bordering the proximal line of resection. There was a shallow, less indurated ulcer, 4 by 4 cm., on the middle third of the lesser curvature of the stomach. This appeared to be separated from the main tumor by about 2 cm. of grossly normal mucosa. The large ulcer was a tumor that was 10 to 12 mm. thick on sec-



Fig. 1. X-ray of the stomach showing a lesion and filling defect from pressure of a palpable mass.

tion and was firm and white. It extended through to the serosa and made it pale and puckered. Several pink lymph nodes up to 10 mm. in diameter were present in the fat of the lesser curvature near the tumor, but they appeared grossly benign. The spleen, weighing 190 gm. and appearing grossly normal, was also present. In the portion of the pancreas removed, there was a cyst, 6 by 7.5 by 5 cm., that had a tough fibrous wall 1 to 2 mm. thick and was filled with a grey semisolid material. On the outer surface of the cyst wall, there was a patch of pancreatic tissue 8 by 6 cm. and up to 8 mm. in thickness.

The microscopic specimens revealed the ulcerated tumor of the stomach to be a scirrhous carcinoma. The spleen was found to be normal. The pancreatic tissue suggested a true cyst of the pancreas which was undergoing malignant change, and the tumor was very different in appearance from that of the stomach, inasmuch as the pancreatic tumor was forming very definite glands.



Fig. 2. Microscopic section of the lesion in the stomach.

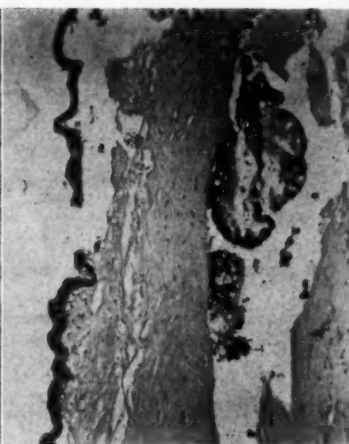


Fig. 3. Microscopic section of the lesion in the pancreas, showing the cyst wall and beginning overgrowth of glandular structure.



Fig. 4. Microscopic section of the lesion in the pancreas, showing carcinomatous invasion of the lesion.



Fig. 5. Postoperative x-ray showing peristalsis in the esophagus immediately above the anastomosis, a pocket formed by extravasation from a leak at the anastomosis, and a diverticulum of the duodenum.

Final pathological tissue report revealed adenocarcinoma (scirrhus) of the stomach, grade 4, with metastases to regional lymph nodes, pancreatic cyst with adenocarcinoma, grade 3, and spleen (Figs. 2, 3 and 4).

The patient's postoperative course was relatively uneventful, and she was able to resume her duties as a housewife after an interval of approximately two months. Her ultimate prognosis is hopeless; but at the present time, she has shown no appreciable deterioration (Fig. 5).

#### Comment

This case is of interest because of the presence of multiple primary carcinomata in the same patient: (1) adenocarcinoma (scirrhus) of stomach, grade 4; (2) adenocarcinoma of a true cyst of the pancreas at junction of body and tail.

The most common cyst of the pancreas is not a true cyst. The common cyst has no epithelium, has a rigid lining and contains a mass of necrotic pancreatic tissue. This is usually the residue of a pancreatitis from which the patient has recovered or is the result of trauma.

The cyst of the pancreas in this case was a true cyst, lined by columnar cells, the same as found in infants. While these rare cysts in adults are usually benign, this one had one small area of malignant change. Ninety per cent of carcinoma of the pancreas occurs in the head, causing a solid jaundice.

It is seldom possible to unite the esophagus to the duodenum in a total gastrectomy. Due to the mechanical factors present in this case, it was possible to do this in this patient with a very satisfactory result.

**Case 2.**—Mr. L. K. was a forty-nine-year-old white man who went to his local physician on October 1, 1948, for a routine physical checkup. He had been in excellent physical health with the exception of occasional slight abdominal cramping after meals. This was noted especially with rich and fried foods. There was no history of weight loss, nausea, vomiting, or bowel disturbance.

In the course of the checkup, physical examination was essentially negative; but, in view of the minor presenting complaint, an x-ray of both the gall bladder and stomach was done. The gall-bladder x-ray was normal. However, during fluoroscopy there was noted a fairly large polypoid type of defect on the posterior wall of the stomach in approximately the middle third. The lesion was quite constant in appearance and was strongly suggestive of a fairly large polypoid tumor, probably a polypoid carcinoma. The lesion extended from a point just below the incisura up to a point about 2 inches below the esophageal orifice and involved chiefly the posterior wall. The lower third of the stomach was normal. A barium enema was normal.

**Past History.**—The patient had had a tonsillectomy in 1938, diphtheria as a child, the usual childhood diseases and a minimal arthritis of the lumbar spine for the past several years. There was no history of carcinoma in the family.

In view of the results of the stomach x-rays, which were reviewed by other roentgenologists, the patient was urged to have a gastric resection (Fig. 6).



Fig. 7. Microscopic section through a sessile polyp—low power.

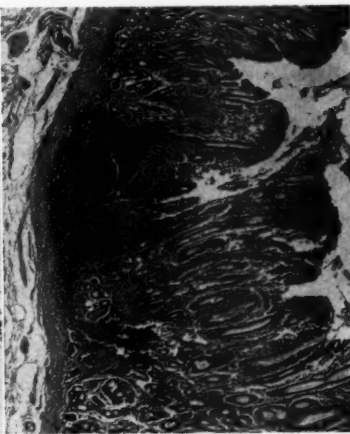


Fig. 8. Microscopic section showing hemorrhagic gastritis in the region of the polypi—higher power.

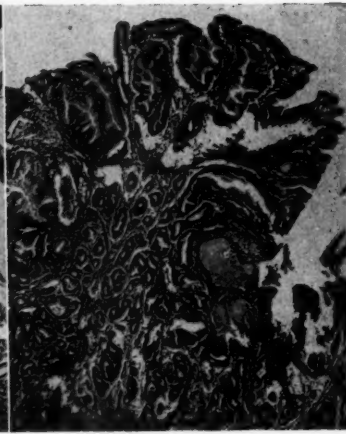


Fig. 9. Microscopic section showing mucous gland cells in the gastric mucosa.

The patient came to operation on October 13, 1948, and about 85 per cent of the stomach was resected. On opening the abdomen, no gross evidence of metastases could be found in the liver or the proximal glands. The tumor described on x-ray could not be palpated grossly through the stomach wall, and there was no evidence of any metastases in the peritoneal cavity. A posterior polya type of resection was carried out without incident.

The macroscopic report by the pathologist of the specimen revealed "the mucosa of the pyloric canal to be of average appearance and thickness. However, the mucosa of the upper three-fourths of the specimen was tremendously hypertrophied and thrown into tall closely packed wide rugae, which could not be stretched out. There were about ten small sessile polypoid-like lesions from 4 to 8 mm. wide and 1 to 3 mm. high on the tops of some of the prominent rugae. There were no pedunculated polyps. There were no indurated areas suspicious of malignancy."

The microscopic report by the pathologist revealed "the mucosa of the pyloric canal to be moderately infiltrated with lymphocytes but not atrophic. The mucosa of the fundus also showed a diffuse lymphocytic infiltrate of moderate degree. The polypoid lesions were largely due to numerous microscopic cysts in the gastric glands. Nothing suggestive of malignancy was seen."

The final pathological tissue report was that the stomach had severe chronic hypertrophic gastritis and multiple polyps (Figs. 7, 8 and 9).

The postoperative convalescence was uneventful except for a short period immediately after operation of the "dumping syndrome" which receded without incident. At the present, the patient is in good condition.

#### Comment

This case was thought to be of unusual interest because of (1) the preoperative diagnosis of carcinoma by two competent roentgenologists, (2) the findings at operation, and (3) the findings of a benign lesion by the pathologist.

As stated above, the fluoroscopy revealed a fairly large polypoid type of defect on the posterior wall of the stomach at approximately the middle third. The lesion was quite constant in appearance and was strongly suggestive of a fairly large polypoid tumor, probably a



Fig. 6. X-ray of the stomach preoperatively.

polypoid carcinoma. The lesion extended from a point just below the incisura up to a point about 2 inches below the esophageal orifice and involved chiefly the posterior wall. The lower third of the stomach was normal.

No evidence of metastases could be found in the open abdomen. The tumor described on x-ray could not be palpated, and grossly the entire stomach appeared to be normal. Only upon opening the stomach could a polypoid lesion be felt.

The report given by the pathologist was benign hypertrophic gastritis with polypoid lesion due to numerous microscopic cysts in the gastric glands. These were sessile, polyp-like lesions, which differ from true polyps in that there is no new gland formation. True polyps of the stomach which are potentially malignant are not as serious as the same lesions in the colon. The type

of hypertrophic gastritis found here with polypoid lesions differs from the ordinary hypertrophic gastritis in that the tissue cannot be "stretched."

### Discussion

DR. OWEN H. WANGENSTEEN, University of Minnesota: The case histories of these two patients which Dr. Nordland has presented in such an interesting manner are unusual. With reference to Dr. Nordland's first patient, the most pressing question is: what is the relationship, if any, of the gastric to the pancreatic neoplasm? It is distinctly unusual that Dr. Nordland's patient should have survived total gastrectomy in the light of the circumstance that a large fistulous tract communicated with the anastomosis. On that score, I would like to say that I once was very sensitive over my mortality in total gastrectomy. This was almost twenty years ago. Unfortunately, some of my colleagues were even more troubled over it than I. In consequence, it was a difficult period for them as well as for me. Time, the great artificer and healer, takes care of most things, however. And it is surprising how the hurts and disturbances of yesterday, when viewed from the broader perspective of today, seem far less important.

In the intervening years, my colleagues and I have learned to do total gastrectomy with an operative mortality which begins to rival that of subtotal gastrectomy for cancer. Whereas twenty years ago, in the experience of the leading exponents of gastric surgery of that time, the mortality of total gastrectomy was approximately 50 per cent, the situation is much better today. With some minor modifications in the technique of performance of the procedure, my colleagues and I (eight surgeons) did twenty-eight total gastrectomies over a two-year interval with one hospital death (3.5 per cent mortality). An esophagojejunal or esophago-gastric anastomosis is the only anastomosis in the alimentary tract which must be done by the open method; the reason is that esophageal mucosa may retract, and if the mucosa retracts from the edge of the tissues apposed when the suture is made, it is obvious that a stricture may form.

Concerning operations on the pancreas coincidental to operations upon the alimentary tract, some points might be emphasized. An air vent suction drain of the Pump or Chaffin variety should be placed down to the splenic bed. My colleague, Dr. Ivan Baronofsky, has shown that the fluid collection is pancreatic in origin. In other words, in splenectomy, it may be virtually impossible to separate the pancreatic tail from the hilum of the spleen without causing a temporary pancreatic fistula. Moreover, this circumstance may be responsible for the febrile episodes which now and then accompany simple splenectomy. My associate, Dr. John Lewis, has the impression from some work which we have been pursuing jointly in the laboratory that the generous parenteral administration of penicillin may be the best therapeutic agency with which to thwart the potentially serious consequences of acute pancreatic necrosis. At least in the dog, in which the injection of bile into the pancreatic duct is the activating agency, this appears to be true.

With reference to Dr. Nordland's second case, much could be said. The pathologist's diagnosis of multiple polypi certainly justifies partial gastrectomy as Dr. Nordland carried it out. Gastric polypi are precursors of cancer but probably not as quick precursors of malignancy as are colic and rectal polyps. At the moment, we are trying to assess this factor in a number of patients with polyps and achlorhydria now under observation in a "Gastric Cancer Precursor Group Study," under way at the University Hospitals.

If we surgeons are going to make a more indelible impress upon the subject of gastric cancer than we

have, it must be through the agency of earlier diagnosis. We can now bring the larger number of patients with gastric cancer submitted to operation safely through the ordeal. What we must learn to do is to recognize gastric cancer earlier than we do. Increasing experience is teaching all of us that visceral cancer is silent in its early phases. In other words, it is not enough to be on the lookout for early symptoms alone. No, we must be scrutinizing patients who may unknowingly harbor the disease. The silent interval in gastric cancer, during which the villain lurks there without causing symptoms, is probably from fifteen to twenty months. We know that from the case histories of patients undergoing radical operation for gastric cancer, in whom cancer is detected by the pathologist in the proximal line of resection on careful microscopic study of the excised tissues. Obviously, such patients should be submitted to early reoperation. Moreover, in Borrmann IV types of gastric cancer, total gastrectomy should be carried out more frequently than it is now.

We know that the presence of lymph node metastases decreases considerably our opportunity of curing cancers of any kind. On that score, in patients presenting lymph node involvement in malignancies of the stomach and colon, in which we feel that we have done an otherwise complete operation, I have been suggesting to my colleagues that we re-enter the abdomen after an interval of approximately four months to do a "wiping-up" operation. In other words, a Dukes' Group C lesion, like the patient with microscopic cancer in the proximal line of resection, should be looked upon as harboring residual cancer which is incubating and growing slowly. The reassertion of clinical symptoms in such patients may not be expected for another fifteen or twenty months.

The tragedy of the situation is that early gastric cancer is difficult to diagnose and easy to cure, whereas the late gastric cancer is very easy of recognition but very difficult to cure.

DR. LEO RIGLER, University of Minnesota: I was most intrigued by Dr. Nordland's second case as it illustrates a problem that we have been confronted with many times. I am not clear as to what he decided the second case was. I would say, from the first slide, that it was the condition called "giant rugae." So far as we know, they are not neoplastic in nature, although it has been reported that papillomata become superimposed on these. In the series of symptomless patients on whom we did routine examinations, we ran into this three times, and the problem of differentiation from carcinoma or polyposis was very difficult. I have seen at least four patients who have been sent to Dr. Wangensteen from various places for an operation for carcinoma of the stomach, none of whom had carcinoma—merely these giant rugae. The distinction can be made but it is not an easy one. There may be hyperplastic mucosa overlying these large folds which are almost invariably seen on the greater curvature of the stomach, usually without specific symptoms.

We feel very strongly that polypi in the stomach become malignant, but this thesis is almost impossible to prove. If the tumor is removed and it is benign, malignancy cannot develop. If it shows malignant cells, there is no way of proving that these were not present from the beginning. Some patients may live for ten or fifteen years and nothing happens. The lesions remain the same, but one never knows which ones are going to remain benign and which ones will become malignant. I just saw a patient the other day at the Veterans Hospital. He had pernicious anemia, no gastric symptoms, but routine x-ray examination was done. A tumor thought to be a benign polyp both roentgenologically and gastroscopically was found. At operation it proved to be a carcinoma *in situ*. The relationship of giant rugae to carcinoma is not well established, and we would be inclined to follow the patient for a time.



DR. MOSES BARRON, Minneapolis: It is well to remember that these giant rugae are not very likely to become malignant. It is, therefore, important to establish the diagnosis of hypertrophy of the rugae and not confuse it with extensive carcinoma which it sometimes resembles in the x-ray. These patients may go to a chiropractor who may cure them with celery or other vegetables after a physician has made a diagnosis of an inoperable carcinoma. Exploratory operations are therefore indicated in these patients. I saw one with such a condition at St. Mary's Hospital in whom a diagnosis of extensive carcinoma of the stomach had been made from an x-ray and who at operation proved to have perfectly benign giant rugae.

DR. NORDLAND (in closing): I am very thankful to the gentlemen for their discussions. The case with the polypoid disturbance of the gastric mucosa illustrates the

difficulty encountered in the preoperative diagnosis. While the patient may have continued in relatively good health, Dr. Barron has pointed out a good reason for surgical interference. An important observation in this case was the fact that with the abdomen open, a thorough palpation of the entire stomach revealed no evidence of a lesion. This illustrates that we cannot always depend upon the judgment of the surgeon, and how much we depend upon the findings of the roentgenologists.

The second patient, with two distinct types of carcinoma, illustrates the increased safety of extensive surgery in the aged sick. Possibly without the aid of antibiotics it would have been difficult to do a total resection of the stomach, uniting the esophagus to the duodenum, excising a portion of the pancreas, and removing the spleen.

## CONGENITAL DISLOCATION OF THE HIP

### Early Recognition and Treatment During the First Six Months of Life

VERNON L. HART, M.D.

Minneapolis, Minnesota

The motion picture which I will present is part of an educational program against the usually late recognition and treatment of congenital dislocation of the hip. My purpose is to encourage the general practitioners, the pediatricians, the roentgenologists and the obstetricians to renew their interest in this serious congenital malformation with dislocation, so that it will be recognized and treated, not late when there is a limp, telescoping and obvious shortening, but early before the function of weight bearing or during the first six months of life. Weight bearing begins with creeping and generally the infant starts to creep during the seventh month. Before the function of weight bearing, displacement of the femoral head from the socket usually is not complete or a dislocation, but is partial or a subluxation.

A fundamental teaching of orthopedics since the time of Nicolas Andry (1658-1742) has been early recognition and early treatment of congenital deformities. All physicians are familiar with the importance of the application of this basic principle in the treatment of congenital talipes, torticollis and other congenital malformations which, either directly or indirectly, are caused by contracture of muscle, tendon and fascia. Most cases of club feet and wry neck caused by contracture can be cured by simple and conservative measures if recognized and treated soon after birth. This statement holds good for congenital dislocation of the hip since it, too, is related, either directly or indirectly, to contracture of muscle, tendon and fascia. Actually, during early infancy and before weight bearing, the only constant and positive clinical finding of congenital hip displacement is caused by contracture of the adductor muscles of the hip (Fig. 4).

Generally, congenital dislocation of the hip is recognized about the age of two years because someone observes that the child walks with a limp. The recognition is very late and, unfortunately, it is often too late for successful treatment. Every child with congenital

dislocation of the hip which is recognized at the age of one, two or three years, had positive clinical findings and roentgenological features before weight bearing or during the first six months of life. In fact, the findings were present at birth.

Clinical and roentgenographic findings which may seem insignificant at the age of one, two or three months of life, might become major and serious deformities at the age of two or three years because of the very extreme activity and growth or endochondral ossification of the skeletal structures of the hip joint during this early period.

A prominent pediatrician recently informed me that, although he tested the hip joints of every infant for telescoping, he had never found a displacement of the hip during infancy before weight bearing. He assumed that telescoping of the hip is an early and positive clinical finding. Indeed, it is a positive finding but usually not an early one; it is a very late clinical finding. This physician—like most physicians, I believe—does not understand the pathogenesis of this serious congenital malformation with dislocation. During early infancy this malformation with dislocation is rare; with subluxation, common.

Our concept of the pathogenesis of congenital hip dislocation has changed considerably during the past several years. In fact, the term "congenital dysplasia of the hip joint," with and without displacement of the femoral head from the acetabulum, should be the title of this discussion. Dislocation is a secondary phenomenon and need not necessarily occur. The actual or potential primary malformation is a dysplastic and inadequate acetabulum with an insufficient or aplastic roof or buttress for stability of the head of the femur. Dislocation may or may not emerge as one of the many dysplastic sequelae. Every complete displacement of the femoral head from the socket, or dislocation, at one time passed through a stage of partial displacement or

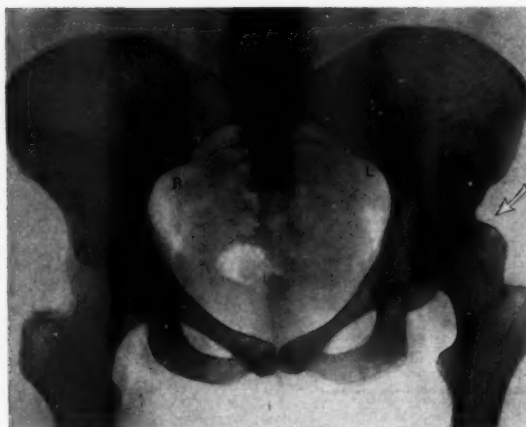


Fig. 1. Roentgen study of a woman, a school teacher, forty-one years of age, who had no disability of the left hip until at the age of thirty-nine years. I did not appreciate the true etiology until the patient informed me that her sister was disabled with bilateral congenital dislocation of the hips. Previous to this experience I did not understand the relationship between congenital subluxation and congenital dislocation of the hip. This patient's severe pain and disability were the result of osteo-arthritis secondary to the trauma of joint incongruity. Observe (1) the primary flat inadequate dysplastic socket, (2) subluxation, (3) malformation of the femoral head, (4) interruption of Shenton's line and (5) extensive osteoarthritis of the weight-bearing portion of the head of the femur and acetabulum, with bone sclerosis, narrowing of joint space and areas of cystic rarefaction. Congenital subluxation of the hip is a common cause of disability during early adult life. In fact it is the most common cause of arthritis deformans, malum coxae senilis or degenerative hip disease.



Fig. 2. The most convincing evidence of relationship between dislocation and subluxation is found in patients who present positive roentgenographic features of the two entities involving both hip joints. The above roentgen study is of a housewife, thirty-eight years of age. The dislocated hip had caused trouble since childhood. The opposite hip was considered "normal" until the age of thirty-six years, when pain began secondary to osteoarthritis resulting from the traumata of incongruity. This patient's hip joints were never treated previous to her examination.

subluxation during its development. Dysplastic hips form during embryonic or fetal life and, relatively, very few dislocate during intra-uterine life. The great majority of dysplastic hips with displacement of the femoral head are in the stage of subluxation during early infancy or the first six months of life. As a result of weight bearing, abnormal muscle pull and hip joint instability, the subluxated femoral head may continue to migrate and become completely displaced from the acetabulum. Only this situation should be described as congenital dislocation of the hip. Most subluxated hips, without treatment, never dislocate but remain as subluxations throughout the life of the individual and frequently cause no disability until osteoarthritis is superimposed soon after young adult life (Fig. 1). Some individuals, born with hip joint dysplasia, may continue throughout life with a shallow and incompetent acetabulum but with no displacement of the head of the femur and with no complaints until later in life when the trauma of hip joint incongruity produces a traumatic osteoarthrosis of the articulation. And, finally, many dysplastic hips either during intra-uterine life or during infancy, return to normal, without treatment, because of the remarkable phenomenon of spontaneous recovery.

Dysplasia, a temporary or permanent, partial or complete, mild or extreme, inhibition and alteration of the normal growth forces of mesodermal tissue, or endochondral ossification, is not limited to the acetabulum but may involve all hip joint structures. Epiphyseal dysplasia should not be confused with aseptic or avascular necrosis

of the femoral head. There are several causes of coxa plana; congenital dysplasia of the hip is one of them.

Our knowledge of the etiology and the pathogenesis of this serious hip joint malformation with dislocation is still very incomplete. Only a clear understanding of the newer knowledge will enable us to apply the old but fundamental teaching that congenital deformities should be recognized and treated soon after birth.

1. The true etiology of congenital dysplasia of the hip joint, with or without femoral head displacement, is unknown. Genetic, biological and mechanical influences need further investigations.

2. If a dysplastic and inadequate hip forms during embryonic or fetal life, then there are six possibilities for subsequent development of the joint:

- (a) The hip joint may return to normal during intra-uterine life or early infancy, with no treatment, as a result of the remarkable phenomenon of spontaneous recovery.

- (b) The dysplastic hip with only a flat socket may persist as such throughout the life of the individual with no displacement of the femoral head from the socket.

- (c) The femoral head may be partially displaced from the acetabulum as a subluxation which may persist as such throughout the life of the individual.

- (d) Displacement of the femoral head may gradually increase from a partial to a complete displacement or dislocation.

- (e) Rarely extreme dysplasia with irreparable malformation of all structures of the hip joint and marked shortening of the shaft of the femur develops.

- (f) Coxa plana or epiphyseal dysplasia may be the only expression of hip joint dysplasia.

3. Congenital subluxation is a common entity during the age periods from infancy to late adult life.



Fig. 3. Congenital dysplasia of the right hip joint with slight displacement in an infant of six months. Clinical examination demonstrated limitation of hip joint abduction because of contracture of the adductor muscles, asymmetry of the thigh folds and creases and slight shortening from pelvis to knee.

The x-ray study reveals the following findings of hip joint dysplasia: (1) inadequate bony socket with sloping acetabular roof, (2) delayed development of the center of ossification of the femoral head, (3) delayed closure of the ischio-pubic juncture, (4) slight upward and lateral displacement of the femoral epiphysis or head, (5) adduction attitude of the extremity, (6) mild disturbance of Shenton's line, (7) hypoplasia of the pelvis.

Dysplasia means abnormal growth. Normal growth of the skeletal structure of the hip is by endochondral ossification. Therefore, dysplasia of the hip joint means abnormal endochondral ossification.

4. Congenital subluxation is the precursor of congenital dislocation.

5. Both entities, subluxation and dislocation, frequently affect the two hip joints of a single patient (Fig. 2).

6. Subluxation, like dislocation, is more common in the female.

7. Weight bearing begins with creeping, usually in the seventh month of life.

8. During the first six months of life:

(a) Dislocation is rare.

(b) Subluxation is common (Fig. 3).

(c) All clinical findings are related to contracture of the adductor muscles of the hip (Fig. 4).

(d) Roentgenographic features are present and positive (Fig. 3).

(e) The clinical and roentgenographic findings, which frequently are considered insignificant, may become major, permanent and irreversible at the age of two or three years.

(f) Treatment with the Frejka abduction pillow splint (Fig. 5) is simple, dynamic and effective, and eliminates (1) hospitalization, (2) anesthesia, (3) traction, (4) manipulation, (5) trauma, (6) plaster immobilization, and (7) abduction frames. It prevents (1) subluxation, (2) dislocation, (3) contractures, (4) adhesions, (5) growth malformations of bone and cartilage, (6) aseptic necrosis of bone and cartilage, (7) traumatic osteochondroses, and (8) traumatic osteoarthritis.

9. Educational propaganda is essential.

10. Co-ordinated research should be encouraged.

11. At present there are no valuable statistics of congenital dysplasia of the hip during the first six months of life.

12. The dysplastic hip can be recognized during early infancy by clinical examination. There are several clinical findings, but only one of these is constant and definite. Abduction of the flexed hip joint is limited because of contracture of the adductor group of muscles.

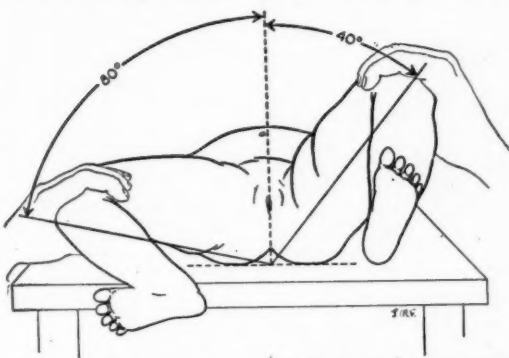


Fig. 4. There are several clinical findings of congenital dysplasia of the hip during early infancy, but only one, limitation of hip joint abduction, is constant and positive. Abduction is limited because the adductor thigh muscles are in a state of contracture. In a normal infant with the hips and knees flexed ninety degrees, the knees may be spread apart and the hips abducted about eighty degrees. The knees almost touch the examining table. Limitation of abduction is an early and constant clinical finding of congenital displacement of the hip joint.

In a normal infant, with the knees and hips flexed 90 degrees, the knees may be spread apart and the hips abducted about 80 degrees. The knees almost touch the examining table. Limitation of abduction is a constant clinical finding of congenital displacement of the dysplastic hip joint (Fig. 4). Shortening from the pelvis to the knee is frequently demonstrated by comparing the knee levels with knees and hips flexed 90 degrees. The shortening may be increased when the knees and hips are flexed because the acetabular defect is often more posterior than superior. This test is not constant and not always positive since it can be influenced by the examiner's enthusiasm. Contracture of the adductor muscles with flexion-adduction attitude of the extremity,



Fig. 5. Treatment of congenital displacement of the hip during early infancy before weight bearing is the secret for improving our results of treatment of congenital dislocation of the hip. Treatment at this early age period prevents dislocation and other serious secondary changes of all hip joint structures. The Frejka abduction pillow splint treatment eliminates hospitalization, traction, manipulation, trauma, plaster immobilization and passive abduction frames. The splint provides active and functional immobilization.

Professor Frejka, of Brno, Czechoslovakia, described this splint at the annual meeting of the American Academy of Orthopaedic Surgeons in Chicago, January, 1947. The main feature of the splint is a pillow which is placed in an envelope-like portion of the splint. This pillow section fits firmly between the thighs. The pillow pressure gradually overcomes the adductor contracture, abducts the hips completely and levers the femoral head to its natural position within the dysplastic socket. The adductor contracture and the limitation of abduction usually are corrected two or three weeks after the splint is applied. The splint is made of twill or mattress ticking. Both white and colored materials are used—blue for boys and pink for girls. The pillow is filled with kapok or feathers. A waterproof material is placed between the splint and diapers.

The mother is instructed in the application of the splint and care of the infant. Examination and roentgen studies are made at the office monthly. The splint is altered as the infant grows. Standing and walking are not delayed. The splint treatment is continued until roentgen study demonstrates an adequate acetabular roof and a stable hip joint. Treatment usually continues over a period of about four months; however, some infants require less and others more time in the splint. The hip joint usually returns to normal because of three factors. (1) spontaneous healing, (2) favorable mechanical and functional stimuli, (3) early treatment before the addition of serious secondary pathological changes.

which is a position of hip joint instability, plays an important role in the production of femoral head displacement from the socket with resulting shortening of the extremity.

Other common clinical findings are extra skin folds and creases or just deeper and more cephalad inguinal and gluteal folds. The asymmetrical skin folds and creases are the result of adductor muscle, tendon and fascia contracture and skeletal shortening from pelvis to knee. They are frequently observed in normal infants also, but their presence should cause suspicion of the hip joint malformation. There is frequently an adduction attitude of the extremity secondary to the adductor muscle con-

tracture of the thigh. Pain, swelling, atrophy, and muscle spasm are absent. A mother may be concerned because of her observation that one knee does not spread as far as the opposite one when changing diapers, that there is a difference in the rotational attitude of the extremities, that the baby powder remains in one unusually deep skin crease, or that a clicking sound is present at the hip level. The great majority of these malformed hips, however, will not be found during early infancy unless the obstetricians, pediatricians, general practitioners, interns, residents, and nurses routinely examine the hip joints during the first days and weeks of life.

The presence of contracture of the adductor thigh muscles, tendons, and fascia, must be emphasized since it is related to all of the clinical findings.

13. Every infant should have this simple examination.

14. Routine mass x-ray studies of all newborn babies without clinical studies would create confusion and should not be encouraged. Co-ordinated clinical and roentgenological studies of large groups of infants at birth and at several intervals during the first year of life should be encouraged in our hospitals.

15. The first diagnosis should be a clinical diagnosis and then confirmed or rejected by proper x-ray study.

16. Congenital dysplasia of the hip during early infancy is primarily a problem of the general practitioners and the pediatricians. Obstetricians may recognize the dysplastic hip immediately after birth.

17. Roentgenologists have an essential part in the academic and in the practical course of this program.

18. The only "secret" to improve the results of treatment of congenital dislocation and subluxation of the hip is early recognition and atraumatic treatment during the first six months of life before weight bearing.

#### Discussion

DR. R. T. LA VAKE, Minneapolis: I would like to ask Dr. Hart whether I could discover this condition at birth?

DR. HART: Yes, the clinical findings and the x-ray features are present at birth. The obstetrician should routinely test abduction of the flexed hips by separating the knees. Limitation of abduction may be present because of contusion about the buttocks following breech presentation. The hip joint may be normal but x-ray study should always be made if hip abduction is limited, just to make certain that the hip is not displaced.

DR. LEO RIGLER, University of Minnesota: would you think it worth while to make routine x-rays of the pelvis of all newborns before they leave the hospital?

DR. HART: I would discourage a program of routine x-ray studies of all newborns because confusion would result. I certainly would encourage such a program, however, if co-ordinated with clinical examination.

DR. RIGLER: The clinical findings are not common until later. Radiologists would have to learn to interpret the films. It is really more a matter of whether the incidence is sufficient to justify routine examination. How often would you find this abnormality in the newborn population?

(Continued on Page 772)



## "Severe intractable asthma

requires more strenuous measures. . . . Aminophyllin in doses of 0.25 Gm. dissolved in 10 cc. of water is often very effective when injected intravenously."<sup>1</sup>

To relax spasm, relieve congestion and restore deep, regular breathing,

## SEARLE AMINOPHYLLIN\*

has proved a valuable drug—generally effective even in epinephrine-refractory cases.

Searle Aminophyllin is indicated in paroxysmal dyspnea, bronchial asthma, Cheyne-Stokes respiration and selected cardiac cases.

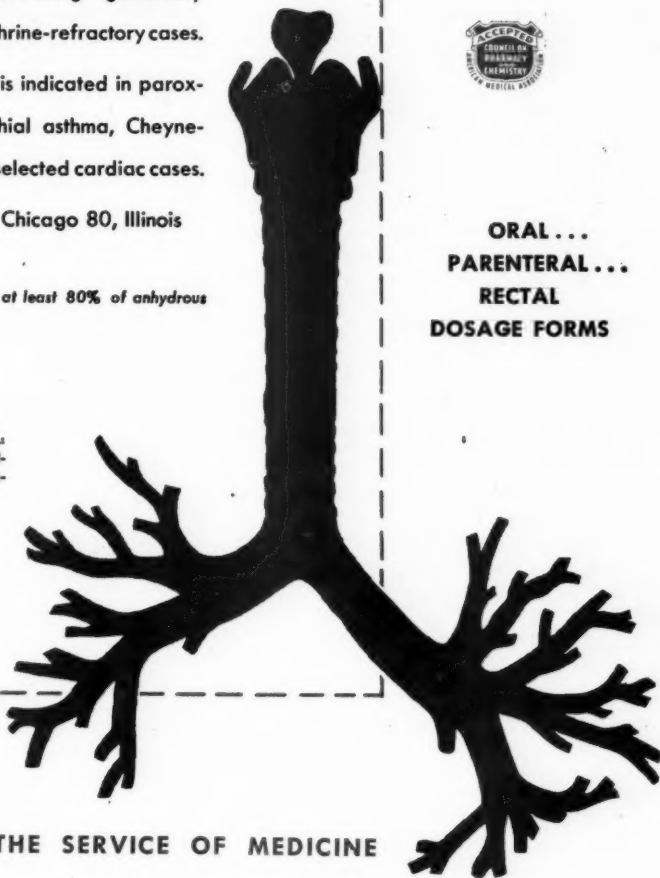
G. D. Searle & Co., Chicago 80, Illinois

\*Searle Aminophyllin contains at least 80% of anhydrous theophylline.

1. Rackemann, F. M., in Cecil, R. L.: Textbook of Medicine, ed. 7, Philadelphia, W. B. Saunders Company, 1948, p. 539.



ORAL . . .  
PARENTERAL . . .  
RECTAL  
DOSAGE FORMS



## SEARLE

RESEARCH IN THE SERVICE OF MEDICINE

## ◆ Reports and Announcements ◆

### MEDICAL BROADCASTS

The Minnesota Department of Health radio schedule for July and August is as follows:

July 4—Let's Have a Safe and Sane Summer  
 July 11—Polio in Minnesota  
 July 18—Two Centuries of Vaccination  
 July 25—Safety on the Farm  
 August 1—Keeping Babies Well  
 August 8—The Story of Askov (Dr. Jordan)  
 August 15—Blood Banks  
 August 22—Eating Without Regrets (Mr. Adams)  
 August 29—How Healthful Are Our Schools?

With the exception of the talks on August 8 and 22, these programs will be given by Dr. R. N. Barr, chief of the Section of Special Services. "The Story of Askov" will be given by Dr. W. A. Jordan, director of the Division of Dental Health. On August 22, Harold S. Adams, director of the Division of Hotel and Resort Inspection, will give the talk on "Eating Without Regrets."

### AHA PURCHASING INSTITUTE CANCELLED

The American Hospital Association cancelled the summer Institute on Hospital Purchasing. The institute was originally set for July 11 through July 15 at the University of Michigan, Ann Arbor, Michigan.

Less than twenty-five registrations were received five weeks before the institute was to begin, so limiting the administrative budget that it was deemed impractical to continue with the program. In addition, it did not seem feasible to have the outstanding purchasing experts who had agreed to serve as faculty members travel to Ann Arbor to address such a small group.

One Institute on Hospital Purchasing was held from April 18 through April 22 in Washington, D. C. No other purchasing institute is scheduled for 1949.

### AMERICAN COLLEGE OF CHEST PHYSICIANS MINNESOTA CHAPTER

At a recent meeting of the Minnesota Chapter of the American College of Chest Physicians, the following officers were elected for the ensuing year:

President, John F. Briggs, M.D., Saint Paul.

Secretary-Treasurer, Karl H. Pfuetze, M.D., Cannon Falls.

At the request of Dr. Hilbert Mark of the State Department of Health, the Chapter decided to establish a speakers' bureau on chest diseases. These speakers will be called upon by Dr. Mark to address county medical society meetings, luncheon clubs and various lay groups regarding the different phases of tuberculosis control work in the state.

The Chapter voted to collaborate with the University of Minnesota in sponsoring a postgraduate course in diseases of the chest which will be held at the Center for Continuation Study on the University Campus next fall.

### NORTHERN MINNESOTA MEDICAL ASSOCIATION

The Northern Minnesota Medical Association will hold its annual meeting at Alexandria on September 9 and 10, under the direction of its officers, Dr. R. H. Puumala, Cloquet, president; Dr. W. J. Deweese, Bemidji, vice president, and Dr. C. L. Oppegard, Crookston, secretary-treasurer.

The program for the two-day meeting is as follows:

#### September 9

- 9:00 a.m.—"Epidemic Diarrhea of the Newborn" by Dr. R. O. Bergen, Duluth.
- 10:00 a.m.—"Applied Surgery of the Stomach, Duodenum and Biliary System" by Dr. C. H. Mead, Duluth.
- 11:00 a.m.—"A Clinical Appraisal of the Present-Day Methods for the Treatment of Essential Hypertension" by Dr. Howard M. Odel, Rochester.
- 12:00 noon—Business Meeting.
- 12:30 p.m.—Luncheon, with the Park Region District and County Medical Society as hosts.
- 2:00 p.m.—"General Consideration of Carcinoma of the Cervix and Corpus" by Dr. Leonard Lang, Minneapolis.
- 3:00 p.m.—"The Roentgen Diagnosis of Diseases of the Urinary Tract" by Dr. Harold O. Peterson, Saint Paul.
- 4:00 p.m.—"Recent Therapeutic Advances in Dermatology" by Dr. Francis Lynch, Saint Paul.
- 7:00 p.m.—Annual Banquet, at Blake's Hotel.  
 Presiding: Dr. R. H. Puumala, president,  
 Northern Minnesota Medical Association.  
 Remarks: Dr. F. J. Elias, president-elect,  
 Minnesota State Medical Association.  
 Address: The Honorable Edward J. Thye,  
 Senator from Minnesota.

#### September 10

- 8:00 a.m. to
- 12:00 p.m.—"Clinico-Roentgen-Pathological Conference" led by Dr. E. L. Tuohy and Dr. H. G. Moehring, of Duluth.

### Woman's Auxiliary

On September 9 at 12:30 a luncheon for the Woman's Auxiliary to the Northern Minnesota Medical Association will be held at the Alexandria Golf Club. In charge of the arrangements will be Mrs. E. R. Sather, Mrs. H. L. Stemsrud and Mrs. C. E. Carlson, all of Alexandria.

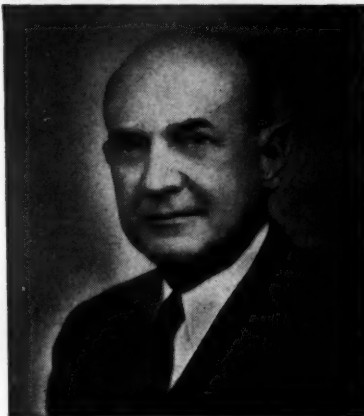
### CARDIOVASCULAR GROUPS MERGE

As a result of preliminary steps taken at a meeting in Atlantic City, June 5, 1949, the American Foundation for High Blood Pressure will be merged with the American Heart Association. The high blood pressure

(Continued on Page 756)

FROM SECRETARY OF DEFENSE LOUIS JOHNSON—

# AN URGENT APPEAL TO YOUNG DOCTORS!



*Your personal help is needed to avert a serious threat to our national security!*

By the end of July of this year we will have lost almost one-third of the physicians and dentists now serving with our Armed Forces. Without an increased inflow of such personnel, the shortage will assume even more dangerous proportions by December of this year.

These losses are due to normal expiration of terms of service. The professional men who are leaving the Armed Forces during this critical period are doing so because they have fulfilled their duty-obligations and have earned the right to return to civilian practice.

Without sufficient replacements for these losses, we cannot continue to provide adequate medical and dental care for the almost 1,700,000 service men and women who are the backbone of our nation's defense.

***Normal procurement channels will not provide sufficient replacements!***

To alleviate this critical, impending shortage of professional manpower in the three services, I am urging all physicians and dentists who were trained under wartime A. S. T. P. and V-12 programs under government auspices or who were deferred in order to complete their training at personal expense, and who saw no active service, to volunteer for a two-year tour of active duty, at once!

We have written personally to more than 10,000 of you in the past weeks urging such action. The response to this appeal has not been encouraging, and our Armed Forces move rapidly toward a professional manpower crisis!

Many responses have been negative, but worse—a great number of doctors have not replied. It is urgent that we hear from you immediately!

*We feel certain that you recognize an obligation to your fellow men as well as to your profession in this matter. We are confident that you will fulfill that obligation in the spirit of public service that is a tradition with the physician and dentist.*

There is much to be said for a tour of duty with any of the Armed Forces. You will work and train with leading men of your professions. You will have access to abundant clinical material; have the best medical and dental facilities in which to practice. You will expand your whole concept of life through travel and practice in foreign lands. In many ways, a tour of service will be invaluable to you in later professional life!

*Volunteer now for active duty. You are urged to contact the Office of Secretary of Defense by collect wire immediately, signifying your acceptance and date of availability. Your services are badly needed. Will you offer them?*

*Louis Johnson*

## REPORTS AND ANNOUNCEMENTS

### CARDIOVASCULAR GROUPS MERGE

(Continued from Page 754)

group will thus become a section of the American Heart Association's Scientific Council and will be known as the Council for High Blood Pressure Research. Other sections within the Association's Scientific Council now include the Section on Circulation and the American Council on Rheumatic Fever.

### SOUTHERN MINNESOTA MEDICAL ASSOCIATION

The Southern Minnesota Medical Association will hold its annual meeting on Monday, September 12, at Red Wing, Minnesota.

The program for the meeting is as follows:

"Recognition and Management of Urinary Infections in Children"—R. S. RODGER, M.D., Minneapolis.

"Physical Medicine in the Home Treatment of Rheumatoid Arthritis" (45-minute movie)—G. M. MARTIN, M.D., Rochester.

"Vitamin B-12 in the Treatment of Pernicious Anemia"—D. C. CAMPBELL, M.D., Rochester.

"Some Aspects of Pediatric Surgery"—TAGUE C. CHISHOLM, M.D., Minneapolis.

"The Cancer Detection Center at the University of Minnesota Hospitals"—D. STATE, M.D., Minneapolis.

"Maternal and Infant Mortality Study in a Small General Hospital"—R. R. WRIGHT, M.D., Austin.

"Vesicovaginal Fistula—Cured Without Major Surgery" (Case report)—R. C. RADABAUGH, M.D., Hastings.

"A Review of Major Surgical Operations in a Small Hospital"—D. P. ANDERSON, M.D., Austin.

"The Painful Shoulder Resulting From Trauma"—E. H. JUERS, M.D., Red Wing.

"Diagnosis and Treatment of Polycythemia Vera"—CHARLES STROEBEL, M.D., Rochester.

"Congenital Atresia of Esophagus in Infancy. Diagnosis and Treatment" (colored movie)—S. D. MILLS, M.D., Rochester.

All physicians are welcome at the meeting and applications for membership will be considered during the business meeting. Additional information may be obtained from W. A. Merritt, M.D., Secretary, Rochester, Minnesota.

### AMERICAN CONGRESS OF PHYSICAL MEDICINE

The twenty-seventh annual scientific and clinical session of the American Congress of Physical Medicine, will be held September 6, 7, 8, 9 and 10, 1949, inclusive, at the Netherland Plaza Hotel, Cincinnati, Ohio. All sessions will be open to members of the medical profession in good standing with the American Medical Association.

In addition to the scientific sessions, the annual instruction courses will be held September 6, 7, 8 and 9. These courses will be offered in two groups. One set of ten lectures will consist of basic subjects and attendance will be limited to physicians. One set of ten lectures will be more general in character and will be open to physicians as well as to physical therapy technicians who are registered with the American Registry of Physical Therapy Technicians.

Full information may be obtained by writing to the American Congress of Physical Medicine, 30 North Michigan Avenue, Chicago 2, Illinois.

### CONTINUATION COURSES

#### Anesthesiology

The Department of Postgraduate Medical Education of the University of Minnesota Medical School announces a continuation course in anesthesiology to be held September 12, 13, 14. The course is not intended for full-time anesthetists but is rather directed toward those physicians who spend a portion of their time as anesthetists. Emphasis will be placed on anesthetic agents commonly used by part-time anesthetists. Clinical problems frequently encountered in anesthesiology will be stressed. Distinguished visiting physicians who will participate as members of the faculty for the course include Dr. Stewart Cullen, professor of anesthesiology, University of Iowa Medical School; Dr. John Adriani, director, Department of Anesthesia, Charity Hospital, New Orleans; and Dr. J. S. Lundy, chief of anesthesia at the Mayo Clinic, Rochester, Minnesota. The remainder of the faculty of the course will be made up of full-time and clinical members of the staff of the University of Minnesota Medical School.

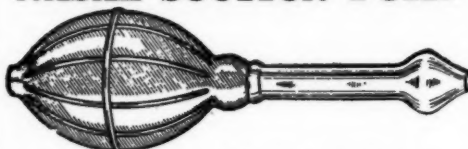
#### Psychosomatic Medicine

A course in psychosomatic medicine for general physicians will be presented by the University of Minnesota Medical School at the Center for Continuation Study, September 12 to 24. Emphasis will be placed upon interview techniques and the actual care of patients with emotional problems. A major part of the teaching will be done in the Out-Patient Department of the University of Minnesota Hospitals where the registrants will gain clinical experience under the supervision of experienced advisors. Faculty members for the course will include full-time and clinical staff of the University of Minnesota Medical School and the Mayo Foundation.

### WASHINGTON SOCIETY

Through an error in type-setting, the name of Dr. E. Sydney Boleyn, secretary of Washington County Medical Society was omitted under the heading Secretary in the County Society Roster published in the May issue. His name does head the alphabetical list of society members in Washington County. Dr. Boleyn was unanimously re-elected secretary of the Washington County Medical Society on December 12, 1948, and we hasten to correct the omission.

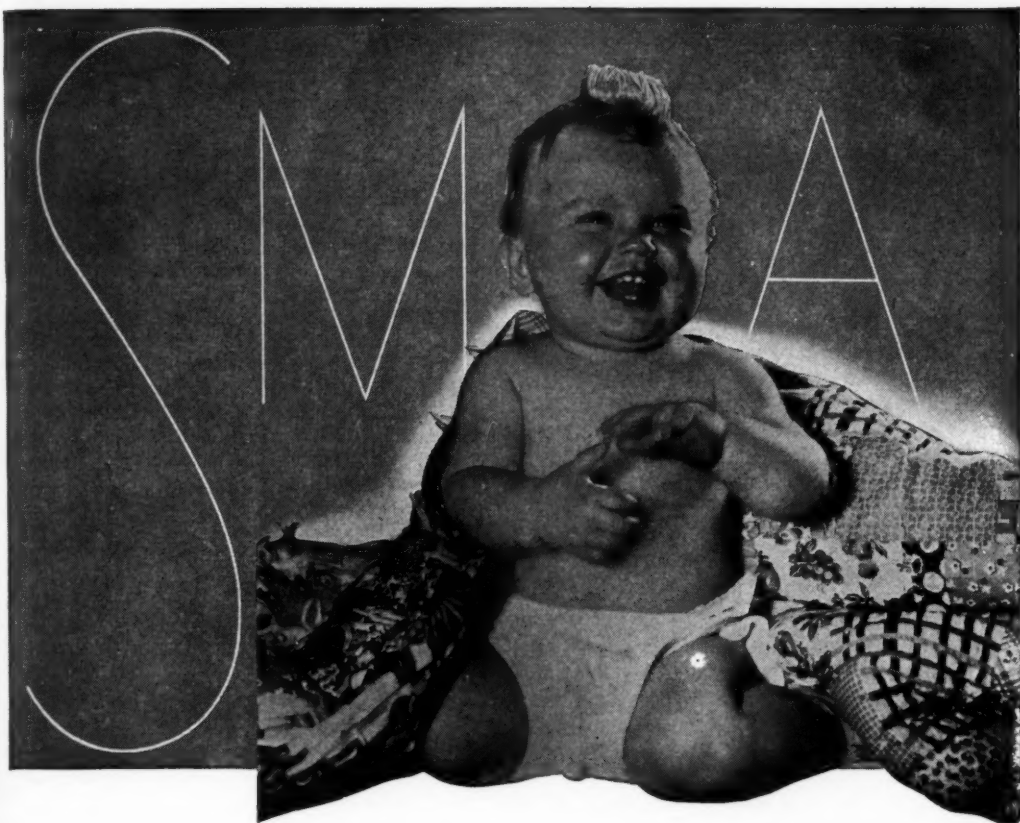
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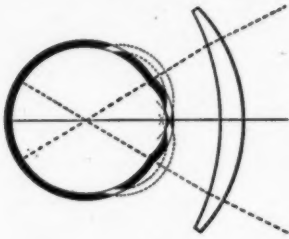
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## In Memoriam

### JOHN G. ERICSON

Dr. John G. Ericson of Minneapolis died May 14, 1949, at the age of eighty-one.

Dr. Ericson was born in Sweden and came to Minneapolis at the age of sixteen. He obtained his medical degree from the University of Minnesota Medical School in 1892 and specialized in eye, ear, nose and throat diseases. He was associated in practice with his son, Dr. Reinhold M. Ericson, at the time of his death.

He was a member of the Hennepin County Medical Society, the Minnesota State and American Medical Associations, the American College of Surgeons, the Swedish Art Institute, the AF and OM and the Zuhrah Temple of the Shrine.

Dr. Ericson is survived by his wife, a daughter, Mrs. Winston E. Sandeen of Minneapolis, and his son.

### IGNATIUS J. MURPHY

Dr. Ignatius J. Murphy, a resident of Saint Paul who practiced radiology in Minneapolis and Saint Paul, died June 2, 1949, at the age of sixty-four.

Dr. Murphy was born February 1, 1884, in Victor, Iowa. He obtained his medical degree from the University of Minnesota in 1909, interned at St. Barnabas and Minneapolis General Hospitals and practiced from 1910 to 1915 in Duluth. He was executive secretary of the Minnesota Public Health Association from 1915 to 1919, when he took postgraduate work in radiology at Harvard. He maintained x-ray laboratories in both Minneapolis and Saint Paul. He was a member of the Hennepin County Medical Society, the Minnesota State and American Medical Associations.

Surviving are his wife, the former Marion A. McCartin, three sons, Jack, Ned and Gregory, and three daughters, Virginia, Delores and Muriel.

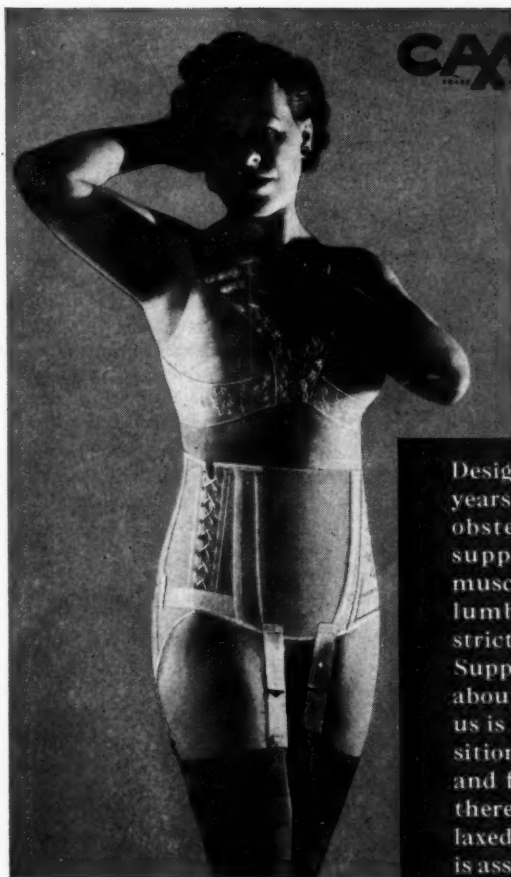
### BENJAMIN FRANKLIN SWEZEY

Dr. Benjamin F. Swezey of Buffalo, Minnesota, died at Eitel Hospital, Minneapolis, on June 2, 1949. He was seventy-five years of age.

Dr. Swezey was born in Fremont, Nebraska, on November 1, 1873. He received his medical degree from Keokuk Medical College at Keokuk, Iowa, in 1903 and practiced with a brother in Iowa before coming to Minnesota in 1906. He practiced first in Nassau and Bellingham before locating permanently at Buffalo.

Dr. Swezey was a member of the Wright County Medical Society, the Minnesota State and American Medical Associations. He served at one time as coroner of Wright County and as Buffalo health officer. He was president of the city's first automobile club in 1921, and devoted much time to civic and lodge activities. He was a Mason and Knight Templar and a member of the Christian Church.

He is survived by his wife, the former Antonie S. Sommermeyer, whom he married in 1910, one son, Benjamin F. Swezey, Jr., and two grandsons.



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# Woman's Auxiliary

## STATE PRESIDENT REVIEWS YEAR

Mrs. Harold F. Wahlquist

*(The following summary of Woman's Auxiliary activities during 1948-49 was prepared by Mrs. Wahlquist for presentation at the National Convention in Atlantic City, June 6-10.)*

Minnesota is proud to be one among forty-eight component auxiliaries forming the Woman's Auxiliary to the American Medical Association. The members of the Woman's Auxiliary to the Minnesota State Medical Association extend greetings to Mrs. Luther H. Kice, our national president, the members of the National Board, and members of the Auxiliary everywhere. We congratulate all for a most effective and energetic year.

Minnesota has just completed its twenty-seventh annual meeting. The past year has been a challenge to us, and we have worked untiringly to meet it.

We are gratified in having 539 new Auxiliary members, a total membership of 2,048 in twenty-nine counties. Three new counties have been organized. We have members-at-large in the three remaining unorganized groups. Organization has been effected through nine regional advisors and members of the Organization Committee. At least six counties are credited with 100 per cent membership.

This past year all of our activities, classified as they may have been, related directly or indirectly to public relations. We wanted people in our communities to know their interests were our interests.

Last September to attain Auxiliary unity and complete comprehension of our undertaking, we set up with the assistance of the Minnesota State Medical Association the first Minnesota Public Relations Workshop Conference in conjunction with our fall Board session. It consisted of a panel discussion on "Mediums for Furthering the Community Health Program"; round table discussions for county presidents, treasurers, and program chairmen; talks by authoritative speakers on timely topics such as public relations and legislation. One hundred members attended this Workshop Conference. We appreciated keenly the visit of Mrs. Kice at this time.

Concurrently, area Health Days became a reality. Minnesota has had nine Health Days since their inception a little over a year ago. They have been co-sponsored by the State Auxiliary, the State Medical Association and the State Department of Health. Through them we have attempted to inform the public about health problems by presenting panel discussions, speakers who spoke with authenticity, exhibits by voluntary health organizations, health movies. Direct results of these Health Days are already evident: they are the formation of County Health Councils, the employment of county health nurses, the active participation of laity in Food Handlers Schools, the enactment

of necessary health legislation. The intangible results will never be revealed completely. They are apparent in the increased community appreciation of the contribution to public health of the private practitioner. Said one county Auxiliary president. "Health Day was considered an outstanding day in this community because people felt that the medical people were working with them." In addition to Health Days many cities and towns have had guest days or reciprocity meetings to which representatives of all community organizations have come as guests of the Auxiliary members. The state president was invited to attend state Auxiliary meetings in Iowa, Michigan, Indiana, and North Dakota to present Health Day plans. An exhibit on Health Days was prepared for the convention; now it will be available to Auxiliaries sponsoring Health Days.

Constantly aware that our most important objective is health education, all Auxiliaries have had intensive educational programs to enable all members to be "better informed." Many packets of material have been distributed to county groups with the co-operation of the State Association. In smaller groups the names of all members were listed on the cover of each piece of literature. The member checked her name when she had read the material and subsequently sent the pamphlet to the next member on the list. In addition, one Auxiliary sponsored a weekly radio program using "live" broadcasts and discs from the American Medical Association.

All voluntary health organizations and the Auxiliary have worked very closely this year. During the Heart Drive, hundreds of plastic hearts were distributed by members. The Woman's Auxiliary conducted its eighteenth year of sponsoring the high school speaking project on tuberculosis, with the donation of two trophies and ten medals as prizes. Through the efforts of Auxiliary members and the Minnesota Public Health Association which conducted the project, an estimated 10,000 high school students prepared talks. Further assistance to tuberculosis work consisted of staffing Christmas Seal booths, stuffing seal envelopes and helping the mobile x-ray unit.

During April more than 12,000 children entered the cancer essay poster contest co-sponsored by the Minnesota Division of the American Cancer Society and the Auxiliary. The Auxiliary contributed toward the prizes. In addition, members made hundreds of cancer dressings every month for distribution by county nurses. Members also attended the annual cancer school at the University of Minnesota.

Varying and original activities have been planned to suit the needs of the Auxiliary and its community. To promote friendship in its group, one Auxiliary encouraged members to write and take part in skits depicting the life of families of physicians. The skits were used for entertainment for the state convention.

*(Continued on Page 762)*



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## STATE PRESIDENT REVIEWS YEAR

(Continued from Page 760)

Philanthropic Funds of Auxiliaries were swelled by rummage sales, white elephant sales, Calico Balls, Easter Monday Benefits. One Auxiliary raised \$2,650 at a luncheon and style show. All profits have been used to support essay contests, provide loan funds and scholarships for nurses and medical students, purchase *Hygeias* and assist with clinics.

Many groups had special hospital interests; they assisted with sewing and purchasing of sterilizers and hospital beds. Special planned itineraries by several county Auxiliaries made it possible for nurses who are trained speakers to present nurse recruitment to high school seniors. Two Auxiliaries conducted sales of articles made by patients undergoing rehabilitation. Members instructed Red Cross classes, volunteered for duty at Blood Donor Centers. One Auxiliary set up a program to assist in an educational program for patients requiring long-term hospitalization.

Medical and surgical relief and *Hygeia* are uninterrupted projects in Minnesota. Every Auxiliary realizes the value of the promotion of *Hygeia*. They promote it by selling subscriptions, supplying subscriptions to schools and libraries, and giving it as gifts. Mower County placed third in Group I in the National contest. Medical and surgical relief drives have continued, with new outlets being made available through missionaries and Indian Reservations.

### Cook County Graduate School of Medicine ANNOUNCES CONTINUOUS COURSES

**SURGERY**—Intensive course in Surgical Technique, two weeks, starting July 25, August 22, September 26.  
Surgical Technique, Surgical Anatomy and Clinical Surgery, four weeks, starting July 11, August 8, September 12.  
Surgical Anatomy and Clinical Surgery, two weeks, starting July 25, August 22, September 26.  
Surgery of Colon and Rectum, one week, starting September 12, October 10.  
Esophageal Surgery, one week, starting October 10.  
Thoracic Surgery, one week, starting October 3.  
Breast and Thyroid Surgery, one week, starting October 10.  
Fractures and Traumatic Surgery, two weeks, starting October 3.  
**GYNECOLOGY**—Intensive course, two weeks, starting September 26, October 24.  
Vaginal Approach to Pelvic Surgery, one week, starting September 19, November 7.  
**OBSTETRICS**—Intensive course, two weeks, starting September 12, November 7.  
**MEDICINE**—Intensive general course, two weeks, starting October 3.  
Gastroenterology, two weeks, starting October 24.  
Gastroscopy, two weeks, starting July 18, September 26.  
Electrocardiography and Heart Disease, two weeks, starting July 18.  
Electrocardiography and Heart Disease, four weeks, starting September 7.  
**PEDIATRICS**—Personal course in Cerebral Palsy, two weeks, starting August 1.  
**DERMATOLOGY**—Formal course, two weeks, starting October 24.  
Informal clinical course every two weeks.  
**UROLOGY**—Intensive course, two weeks, starting September 26.  
Ten-day practical course in Cystoscopy every two weeks.

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Pending national health legislation has given Minnesota members much concern. They have worked diligently this year learning about voluntary and compulsory plans and what the effects of the latter will be on our democratic form of government. At the recent convention, members took 3,000 pieces of literature to distribute in their communities, passed a resolution against compulsory health legislation, acted to have each member contact twenty people, asking them to write their legislators, and to have each county president contact all heads of organizations in her county, asking them to study and support our stand on compulsory health insurance where possible.

On the state level several means have been used to co-ordinate our efforts. Besides the Workshop Conference, our State Association underwrote a quarterly *Newsletter* and allotted the Auxiliary two pages in *MINNESOTA MEDICINE* every month for Auxiliary news and informative material. In addition, all state officers and chairmen were supplied with *Handbooks* and notebooks which contain material relating to their special department. Many subscribed to the *Bulletin*.

Finally, it would be remiss not to mention the important role many Auxiliary members played in our state as leaders in health projects and co-ordinators of efforts of lay leaders. They have served on state, county and local health committees, prepared talks and acted as judges in essay contests. Thus the entire national program has been covered by one county group or another.

Minnesota members were delighted to elect to honorary membership Mrs. S. S. Hesselgrave, a former national secretary, state president, parliamentarian and advisor.

Members in Minnesota grieve the loss of Mrs. James Blake, Sr., former county state and national president, advisor and guide; and Mrs. Archibald MacLaren, the founder of our State Auxiliary. To emphasize our appreciation of Dr. William O'Brien, a long-time advisor to the State Auxiliary, each county is contributing to a memorial which will be placed in his honor in the Dr. O'Brien Memorial Seminar Room in the Mayo Memorial Building at the University of Minnesota.

Any increased activity in Minnesota this year has been made possible through national leadership and the loyal and wholehearted co-operation of our awakened Auxiliary members. Throughout the year we have tried to work as one, guided constantly by our own State Medical Association. For our incoming president, Mrs. H. E. Bakkila, and her Board our earnest wish is a most commendable year. To all I extend sincere appreciation. To this national meeting we wish to bring the assurance that Minnesota is working!

Of the deaths from respiratory tuberculosis in 1947, 32.1 per cent occurred outside of institutions, and 67.9 per cent occurred in institutions. Of the total respiratory tuberculosis deaths, 25.8 per cent occurred in general hospitals, 30.9 per cent in tuberculosis hospitals and sanatoria, and 9.0 per cent in mental hospitals. Sara A. Lewis (biostatistician) *Public Health Reports*, April 1, 1949.

## Communication

The Minneapolis Star  
Minneapolis, Minnesota  
Editor:

The news item on the front page of the *Star* under date of May 25, 1949, reporting the illness of the late Lord Leverhulme, contained some statements which are in error. The reporter stated that "The train conductor wired ahead for a physician to meet the train at Glenwood, Minn. After a cursory examination of the viscount in the patient's compartment, the Glenwood physician advised the family to continue to Minneapolis. . . . The physicians (in Minneapolis) said the viscount's temperature and blood pressure were subnormal and that he had lost a 'considerable quantity of blood.'"

The facts are these: The Soo Line agent at Glenwood, Minnesota, states that he has no record of having received a request for a physician from the train conductor, nor was any actually received. Furthermore, the physicians in Glenwood all deny having seen the viscount. Though without evidence, we understand that the viscount was not seen en route by any physician in Minnesota but by one in another state.

This correction is being requested because of the criticism which is being rained upon all medical facilities at Glenwood by individuals throughout the state,

the inference being that someone was negligent in not advising prophylactic measures, that the reported recommendation that "the family continue to Minneapolis" was ill-advised. Although the prognosis in a bleeding peptic ulcer in a man of sixty-one is admittedly poor, we would have been aware of the need for supportive measures to correct the existing shock, from which he probably succumbed, before it became irreversible.

We join the world in regretting the outcome but feel that we should not bear unjust criticism for failure to render proper service. We are asking you to publish this correction.

Very truly yours,

WAYNE C. RYDBURG, M.D.

*Acting Chief of Staff  
Glenwood Community Hospital*

EDITOR'S NOTE: The above letter is a copy of one sent to the *Minneapolis Star Journal* and is self-explanatory.

Carefully documented studies on the use of streptomycin in clinical tuberculosis have established the fact that this new anti-bacterial agent exerts a beneficial therapeutic effect on several forms of tuberculosis. At its best, however, it is only an auxiliary part of the general treatment in most forms of the disease, and is partially dependent, for its full effect, upon other more common therapeutic measures, such as bed rest, pneumothorax, and chest surgery. (Recommendations of the Subcommittee on Streptomycin of the Expert Committee on Tuberculosis of the World Health Organization, January, 1949.)

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DEALERS IN DEPENDABLE MERCHANDISE

## ◆ Of General Interest ◆

Dr. S. N. Swisher, who has been a resident at Ancker Hospital, Saint Paul, for the past year, began a year of research in hematology in the Department of Internal Medicine at the University of Rochester Medical School, Rochester, New York, July 1, 1949.

Dr. Howard L. Horns, for the past year University representative on the medical service of Ancker Hospital, Saint Paul, and director of the Radio Isotope Unit of the Veterans Hospital, Minneapolis, assumed his duties as assistant dean of the University of Minnesota Medical School, July 1, 1949. He took the position left vacant by Dr. Weaver who became dean of the Medical School at Vancouver, British Columbia.

Veterans Administration pamphlet No. 10-29, entitled "Rehabilitation of the Chronic Neurologic Patient" and written by Dr. A. B. Baker, professor of neurology, and Dr. Joe R. Brown, clinical associate professor of psychiatry and neurology, at the University of Minnesota Medical School, has just been published. The booklet details the program which has been carried out during the past few years at the Veterans Hospital in Minneapolis. The authors report the success which has attended the rehabilitation methods used under their supervision.

Dr. F. M. McCarten of Stillwater attended the AMA meeting at Atlantic City. Accompanied by his family, the doctor visited New York and other points of interest along the Atlantic seaboard before returning home June 22.

In Mountain Lake, Dr. Willis M. Franz recently became associated in practice with Dr. H. R. Basinger and Dr. E. S. Shutz in the Basinger Clinic. A graduate of the University of Minnesota Medical School in 1946, Dr. Franz served his internship at Miller Hospital, Saint Paul. Before moving to Mountain Lake, Dr. Franz was on active duty with the army for two years, stationed at the West Point Military Academy.

One of the speakers at a three-day continuation course in cancer at the University of Minnesota, June 2 through 4, was Dr. David P. Anderson of Austin. A staff member of the Austin Clinic, Dr. Anderson discussed the role of the general practitioner in cancer detection.

Dr. Roy E. Eldred, formerly of Crosby-Ironton, recently became associated in practice with Dr. K. P. Malvey in Bottineau, North Dakota.

A case of ocular Boeck's sarcoid was described in a pathological report by Dr. William V. Knoll, pathologist at St. Mary's Hospital, Duluth, at the annual meeting of the American Ophthalmological Society in Hot Springs, Virginia, June 2 through 4.

Mrs. Mary Dyer Anderson, the mother of Dr. Edward Dyer Anderson, Minneapolis, died on June 3 at the age of ninety.

Dr. Raymond J. Stein has begun construction of a one-story clinic building in Pierz. The building, of modern design, will contain thirteen rooms, including a waiting room, x-ray laboratory, examining rooms and a dental office. Completion is expected early in September.

Dr. Joseph A. Schaefer, a former resident of Shakopee, was recently appointed head of the department of pediatrics at the Doctors Clinic, Portland, Oregon, and the Permanente Hospital, Vancouver, Washington. A graduate of the University of Minnesota Medical School, Dr. Schaefer has studied pediatrics at the Children's Hospital, Buffalo, N. Y., and the Children's Hospital, Akron, Ohio.

On May 22, Dr. Wilford F. Widen, Minneapolis, spoke at the dedication of a new library building on the Bethel College and Seminary campus in Saint Paul. On June 8, Dr. Widen was a speaker at the Minnetonka Baptist Church at Tonka Bay.

After practicing in Little Falls since January, Dr. Scott J. Mighell announced late in May that he would join the staff of the Veterans Hospital in Fargo on June 1 and that on September 1 he would move to the Veterans Hospital in Des Moines, Iowa, to continue his graduate studies in surgery.

Among the speakers at a summer clinic in Brainerd on June 10 was Dr. H. Herman Young of the division of orthopedic surgery at the Mayo Clinic, Rochester.

A physician and a dentist, each with fifty years of practice behind him, were honored at a dinner given by Willmar residents on May 25. The men honored were Dr. Edward H. Frost, who has practiced medicine in Willmar for fifty years, and Dr. C. E. Gerretson, who has completed fifty years of dental practice in the city. More than 200 persons attended the commemorative dinner and took part in the program which followed. Each of the honorary guests was presented with a fifty-dollar bill "to get whatever they wish in the form of a remembrance." Tribute was paid to Dr. Frost in a short talk by Dr. R. J. Hodapp, who represented the Willmar physicians.

Included in the physicians attending a three-day continuation course in medicine at the University of Minnesota, May 12 through 14, were Dr. A. Harold Mork, Anoka; Dr. H. Bradley Troost, Mankato; Dr. Ralph E. Wenzel, Blue Earth, and Dr. Donald S. Branham, Dr. Catherine Burns and Dr. J. Paul Person, all of Albert Lea.





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Dr. John F. Briggs, Saint Paul, was recently named a delegate-at-large to the American Heart Association assembly at Atlantic City.

\* \* \*

At the sixtieth anniversary celebration and reunion dinner of the St. Luke's Hospital School of Nursing in Duluth on May 26, Dr. S. E. Urberg, St. Luke's chief of staff, presented a tribute to graduates who served in World War II.

\* \* \*

It was announced on May 24 that Dr. Theodore P. Mollers had purchased the Soudan Hospital from his former partners, Dr. E. N. Peterson and Dr. W. S. Neff, Virginia physicians. A graduate of the University of Minnesota Medical School, Dr. Mollers opened a practice in Mountain Iron in 1939 and later moved to Soudan.

\* \* \*

Speaking at a meeting of the Rochester Rotary Club on May 26, Dr. Frank H. Krusen of the Mayo Clinic said, "In my opinion, socialization of medicine would be the first irrevocable step away from that freedom which we Americans hold so dearly and toward a welfare state in which, instead of the government being the servant of the people, the people become the pawns of the state."

\* \* \*

Dr. Richard P. Griffin and Dr. Silas W. Giere, both of Benson, were among the more than ninety physicians who attended a three-day continuation course in surgery at the University of Minnesota, May 9 through 11.

Dr. and Mrs. Douglas R. Kusske, who were married on April 22 in Minneapolis, returned to their home in St. Louis Park (Minneapolis suburb) early in May, following a wedding trip to Chicago and Colorado Springs. Dr. Kusske is studying ophthalmology and otolaryngology at the Minneapolis Veterans Hospital.

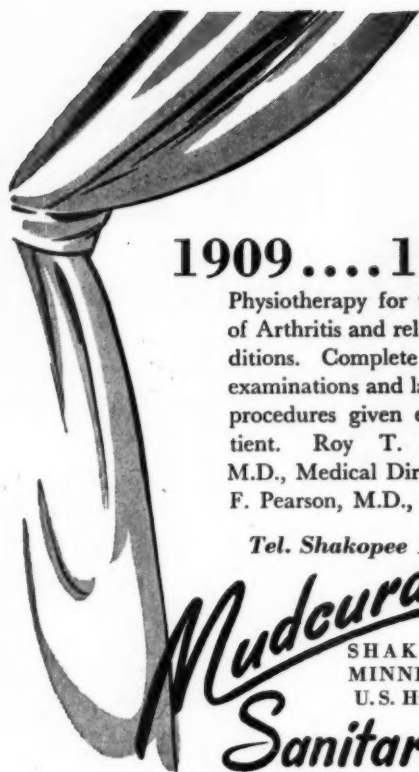
\* \* \*

At a May meeting of the Southern Farm Bureaus in Faribault, Dr. Charles M. Robilliard presented a talk on "The Blood Bank," describing the advantages of having all types of whole blood immediately available and discussing the useful derivatives made from unused whole blood.

\* \* \*

Five of the papers presented at the annual meeting of the American Academy of Neurology at French Lick Springs, Indiana, June 1 through 3, were by Minnesota physicians.

Dr. A. B. Baker, director of the University of Minnesota's neurology division and president of the academy, and Dr. Sidney Shapiro, a member of his staff, reported on the use of dihydro-beta-erythroidine in the treatment of Parkinson's disease. Dr. Joe R. Brown, assistant professor of neurology at the University and director of neurology at Minneapolis Veterans Hospital, and Dr. A. J. Leemhuis, University and VA staff member, gave the results of the first rehabilitation program for persons suffering from diseases of advanced age. Dr. Brown also presented papers on bulbar poliomyelitis and on cerebellar symptomatology. Dr. Ralph



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Rossen, superintendent of the state hospital at Hastings, and Dr. Axel Olsen reported on neuropsychiatric and laboratory observations in a series of 147 head injury cases.

Dr. S. A. Slater, superintendent of Southwestern Minnesota Sanatorium, attended a reunion of his medical class at the University of Virginia, in Richmond, Va., during the first week of June.

A \$500 scholarship to be awarded annually to a Concordia College senior who plans to become a physician has been set up by Dr. B. T. Bottolfson, Moorhead physician now practicing in Fargo, North Dakota. Dr. Bottolfson, a graduate of the University of Minnesota, began practicing in Moorhead shortly after World War I. During 1937 he lived in India, studying nose and throat diseases. Upon his return to Moorhead, he gave up general practice but soon returned from retirement to begin practicing in Fargo.

One of the speakers before the Minnesota Dietetic Association, meeting in affiliation with the Upper Midwest Hospital Conference in Minneapolis on May 26 and 27, was Dr. Russell M. Wilder, Sr., Rochester, who spoke on "The Nutritional Status of the People of Newfoundland."

Among the physicians who attended a three-day continuation course in cancer at the University of Minnesota, June 2 through 4, was Dr. David M. Potek, International Falls.

The 1949 Southern Minnesota Medical Association award for outstanding work in the clinical fields of medicine and surgery at the University of Minnesota Medical School went to John K. Meinert, a senior from Winona. Dr. Harold S. Diehl, dean of medical sciences, made the presentation.

Dr. Arthur H. Wells, Duluth, was elected president of the Minnesota Society of Clinical Pathologists at its meeting in Saint Paul on May 11. The session was held in conjunction with a testimonial dinner for Dr. E. T. Bell, who recently retired as head of the pathology department of the University of Minnesota Medical School.

Little Falls acquired a new physician in early May when Dr. Robert A. Stoy became associated in practice with Dr. R. V. Fait and Dr. D. L. Johnson. Dr. Stoy is a graduate of Loyola University. Prior to moving to Little Falls he was located at LaFayette, Indiana.

Construction work on a new clinic building in Baudette began on May 9. When completed, the building will house the offices of Dr. A. A. Brink, Dr. Leonard Prochaska and Dr. A. G. Janecky. Dr. Janecky is moving from Warroad to Baudette. The new clinic will contain eighteen rooms, including examining rooms, reception room, x-ray room, laboratory, and a room for minor operations.

Dr. Edgar V. Allen, Rochester, was elected vice president of the American Heart Association at the organization's twenty-fifth annual membership meeting in Atlantic City early in June.

The Hennepin County Medical Society has conducted a survey of its members, by secret ballot, to determine the attitude of society members on several controversial issues, among them compulsory federal health insurance.

In May, 829 ballots containing six important questions were sent to society members. The 608 replies that were received were counted by an impartial board of judges.

A total of twenty-nine members voted in favor of governmental compulsory sickness insurance supported by compulsory payroll deductions or income taxes. A total of 565 voted against it, and fourteen checked neither answer.

Results for the five other questions were as follows:

Medical co-operatives (by lay groups, consumer co-operatives).—79 favor, 494 oppose, 35 no opinion.

Blue Cross and Blue Shield plans.—572 favor, 18 oppose, 18 no opinion.

## OF GENERAL INTEREST

Federal grants-in-aid to states for increasing educational facilities to produce more doctors, nurses and technicians (under state control).—296 favor, 287 oppose, 25 no opinion.

Federal grants-in-aid to states to help share cost of health care for the indigent, medically indigent, mentally deficient, tuberculous, the halt, lame and blind (under state control).—436 favor, 157 oppose, 15 no opinion.

Federal grants-in-aid to states to share cost of hospital care for those unable to assume any or all of this cost (under state control).—408 favor, 183 oppose, 17 no opinion.

A number of physicians added individual comments to their ballots, some saying that Blue Cross and Blue Shield benefits are too limited, others favoring only the Blue Cross plan. Three physicians were in favor of governmental compulsory insurance for low income groups only.

\* \* \*

At a meeting of the Minnesota Academy of Ophthalmology and Otolaryngology in Saint Paul on May 11, Dr. O. E. Hallberg, Rochester, presented a paper written in collaboration with Dr. J. W. Begley, also of Rochester, entitled "Osteoma of the Paranasal Sinuses and Its Treatment."

\* \* \*

Three International Falls physicians were appointed to the Koochiching County Welfare Medical Board on May 10. They are Dr. F. H. Walter, Dr. R. D. Hanover and Dr. F. G. Chermak, and their appointments are for one year.

Members of the Lake City League of Women Voters and the Lake City Chamber of Commerce, at a meeting on May 17, heard three British physicians describe what has happened in Great Britain under socialized medicine.

The speakers were Dr. Harold Rodgers, professor at Queen's College in Belfast, Ireland; Dr. Arnold Aldis of Cardiff, Wales, and Dr. William Capper of Bristol, England. The three physicians described the unhappy lot of the general practitioners, the increase in complaints of nonexistent or slight ailments, the oppressive taxation, and the steadily mounting cost of the plan.

\* \* \*

Dr. Howard K. Gray, head of a section in surgery at the Mayo Clinic, received a doctor of science degree at the Lafayette College commencement exercises on June 10.

\* \* \*

It was announced on June 3 that Dr. B. O. Mork, Jr., planned to leave the Worthington Clinic, after seventeen years as a staff member, to enter public health service. Dr. Mork said that he would remain as medical director of Minnesota Public Health District 5 while completing studies to qualify for the public health service.

On May 17, Dr. Mork was guest speaker at the organizational meeting of the Wilkin County Health Council in Breckenridge. To a group of fifty representatives of township and villages Dr. Mork explained

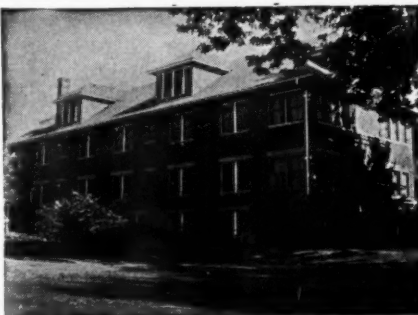


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## OF GENERAL INTEREST

the purposes and organization of county-wide health councils. He also led a panel discussion on public and community health topics.

\* \* \*

During the middle of May, Dr. Frank D. Gray of Marshall attended a reunion of his medical class (1899) at Northwestern University, where he received a diploma of merit commemorating his fifty years of medical practice.

Following graduation, Dr. Gray spent several years in practice at Vesta, then moved to Marshall to help found a hospital there. He has conducted his practice in Marshall for the last thirty-eight years. He has two sons, both physicians: Dr. Robert Gray, now doing postgraduate work at the University of Chicago, and Dr. Frank Gray, Jr., an instructor at the Yale University Medical School.

\* \* \*

Two Rochester physicians presented papers at a meeting of the North Dakota State Medical Association in Minot on May 16. Dr. J. R. McDonald spoke on "Cytologic Diagnosis of Cancer with Reference to Various Smears and Stains." Dr. C. S. MacCarty discussed "Surgery of the Sympathetic Nervous System."

\* \* \*

Pointing out that the principal advocates of socialized medicine are playing politics with the issue, Dr. J. Arnold Malmstrom, at a meeting of the Virginia Kiwanis Club on May 24, painted a dark picture of what would happen in the United States under a system of progressive socialism. Following his talk, Dr. Malm-

strom conducted a question and answer session on the same subject.

\* \* \*

Every Wednesday night, two dozen members of the "Lost Cord Club" meet in the University of Minnesota Hospitals to learn to talk by esophageal speech. Each club member is a person who has had his larynx removed because of cancer.

Under the direction of Dr. Sherman O. Strand, each of the members learns how to swallow air and then release it slowly from his esophagus, controlling it with his throat muscles to produce sound. Only two persons have dropped out of the class so far, and most are determined to learn to speak again. A few members, star pupils who have overcome their own handicap, return to the class to help others learn the trick of "burping" out words. Some persons learn to speak fairly well within a few weeks; with others several months may be necessary.

New members can be admitted to the club if they are referred by their own physicians.

\* \* \*

Dr. John Hall O'Leary, a resident physician at Ancker Hospital, Saint Paul, was married in Saint Paul on June 11 to Miss Enid Lois Keene, an occupational therapist at Minneapolis Veterans Hospital. Attendants of the couple at the ceremony were Dr. O'Leary's brother-in-law and sister, Dr. and Mrs. Milton B. Sorem of Saint Paul.

\* \* \*

At a joint meeting of the Range and St. Louis County Medical Societies in Ely on June 28, the principal speaker was Dr. J. Dewey Biscard, professor of surgery at the University of Nebraska, who spoke on "Cancer—Ulcer Problem of the Stomach."

While visiting at the University of Minnesota Hospitals early in June, Dr. L. J. Witts, professor of clinical medicine at Oxford University, told staff physicians that Britain's nationalized health service has had a beneficial effect on medical schools.

"Instead of discouraging students from entering the medical profession, the health service demand for more doctors has built up a heavy competition for entrance to British medical schools," Dr. Witts said. "There are ten, twenty or thirty applicants for every opening."

\* \* \*

Four members of the University of Minnesota Medical School staff described the University's Cancer Detection Center on June 10 at the annual meeting of the American Medical Association in Atlantic City. The report on the center was presented by Dr. David State, Dr. David Gavisser, Dr. Thomas B. Hubbard, Jr., and Dr. Owen Wangenstein.

### HOSPITAL NEWS

In the election of officers of the medical staff at the St. Lucas Deaconess Hospital, Faribault, during the middle of May, Dr. D. W. Francis of Morristown was elected president. Among the other officers named were Dr. R. R. Moses, Kenyon, vice president; Dr. C. W. Rumpf, Faribault, secretary, and Dr. C. M. Robilliard, Faribault, member-at-large on the executive commit-

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tee. Retiring officers included Dr. C. A. Traeger, president; Dr. Paul H. Weaver, secretary, and Dr. F. W. Stevenson, member-at-large on the executive committee, all of Faribault.

\* \* \*

After two weeks of progress, a hospital fund-raising campaign in Parkers Prairie had collected one-fourth of its \$25,000 goal on May 29. The campaign was seeking funds to purchase a fourteen-bed hospital that has been closed since last December. The fund raisers plan to turn the hospital over without charge to whatever church organization offers the most advantageous terms.

\* \* \*

Combination resuscitator-inhalator and aspirator machines were presented to Loretto and Union Hospitals in New Ulm on May 13 by the New Ulm Lions Club.

\* \* \*

Launching of a drive for \$250,000 to remodel the old Riverview Hospital in Saint Paul and construct an addition took place at a dinner in the Riverview Commercial Club on May 23. The hospital, which is the only one on the west side of the Mississippi River in Saint Paul, is the former West Side General Hospital.

At the dinner meeting, Dr. George Earl, past president of the Minnesota State Medical Association, and James Hamilton, professor of hospital administration at the University of Minnesota, stressed the need for a hospital in the area. Dr. E. K. Endress, chief of staff of the hospital, announced that the hospital staff had pledged 20 per cent of the \$250,000 and that \$37,000 of that pledge had already been collected. It was ex-

pected that the entire \$250,000 would be raised by July 2.

Of the total, \$150,000 will be allotted to the new wing, which will include major operating rooms, urological room, laboratory, x-ray room and twelve beds; \$70,000 will be used to purchase the old hospital, and \$30,000 will cover remodeling and fire-proofing the old section. When completed, the structure will be an eighty-four-bed hospital.

\* \* \*

Construction work on a hospital at Carlton resumed in May after being virtually at a standstill during the winter. In spite of the slow progress and rumors about the noncompletion of the hospital, the Carlton Chamber of Commerce voted on May 18 to support the hospital committee in its plan to proceed with construction. The committee reported that much material, already paid for, was on hand and that there was still a cash balance of \$4,500 in the hospital fund. It was expected that considerable progress would be made during the summer.

\* \* \*

Hospital administration personnel from five states and Canada met in Minneapolis May 26 through 28 for the annual Upper Midwest Hospital Conference. Speakers at the meeting covered such subjects as trends in hospital administration, recruitment and education of nurses, medical staff problems, food cost control, hospital liabilities and responsibilities, hospital public relations and public health.

## OF GENERAL INTEREST

Among the speakers at the meeting were Dr. G. Albin Matson, director of the Minneapolis War Memorial Blood Bank; Dr. Cyrus Barnum, Dr. Gaylord Anderson and Dr. George Moore, of the University of Minnesota.

\* \* \*

A fund drive for \$450,000 to complete the expansion program of St. Luke's Hospital, Duluth, and to add a 150-bed annex to the hospital began at a dinner meeting in Duluth on June 1. The new annex will be constructed across the street from the main hospital and will be connected by underground and overhead passages. The annex will serve as an infirmary for patients with chronic diseases.

On the night before the drive began, Duluth physicians, meeting at the hospital, pledged themselves to a \$50,000 goal in the campaign.

### BLUE SHIELD NEWS

To date this year (May 31, 1949) Blue Shield has made payment on 9,101 cases in the total amount of \$354,948.42. Payment was made for 2,367 cases during May amounting to \$90,627.00.

At the annual meeting of the Minnesota State Medical Association which was held in Saint Paul this year, Blue Shield was discussed at some length both with the Medical Councillors and with the House of Delegates. The annual report of Minnesota Medical Service Inc. was presented by Dr. O. I. Sohlberg, president, at the Sunday evening meeting of the House of Delegates. At this meeting Dr. Elias, chairman of the Council, distributed typewritten copies relative to recommendations by the Board of Directors of Minnesota Medical Service Inc. to the Council at a meeting held on January 16, 1949. Due to the lateness of the hour discussion on the recommendations was postponed until Monday, May 9, at 1:30 p.m.

At the Monday afternoon session of the House of Delegates on May 9, 1949, Dr. Frank J. Elias, chairman

of the Council, presented a brief report of the Minnesota Medical Service Inc. including the proposals which were submitted by the Board of Directors of Minnesota Medical Service Inc. which were as follows:

The Board of Directors of Minnesota Medical Service Inc. wishes to consider the possibility of increasing the income limits of unlimited subscribers from \$1,500 to \$2,000 per year for single subscribers, and from \$2,500 to \$3,000 per year for family subscribers.

The Board of Directors also wishes to consider the possibility of adjusting certain payments to doctors included in the schedule of payments which at the present time may be inequitable, a standing committee of the Board of Directors being available for this purpose.

Dr. Elias stated that a resolution was passed by the Council, approving in principle the proposals presented by Minnesota Medical Service Inc. as outlined above, provided, however, that they be presented to the House of Delegates of the Minnesota State Medical Association.

Dr. O. I. Sohlberg, president of Minnesota Medical Service Inc., was then called upon to give further information necessary. He advised the members of the House of Delegates that if they agree to raise the income limits of the unlimited subscribers it would still have to be referred to the participating doctors of medicine before such could be put into effect. Dr. Sohlberg also mentioned that of the seventy-three Blue Shield Plans in existence today there are only three plans that have as low income limits as we have at present.

After the subject had been considerably discussed action was taken by the House of Delegates regarding the following resolution:

"Expressing our confidence in the Board of Directors of the Minnesota Medical Service Inc., and to promote the social welfare of the people who are within the unlimited income group, the House of Delegates agrees in principle to the increase in limits for unlimited subscribers from \$1,500 to \$2,000 per year for single subscribers and from \$2,500 to \$3,000 per year for family subscribers."

The resolution was unanimously approved.

It was understood that before these changes would take place a letter would be submitted to all participating doctors throughout Minnesota for their opinions on this proposed change. These letters went out to all the Blue Shield participating doctors of medicine in the middle of May with the request that if there were any comments or suggestions they be returned to the Blue Shield office not later than the 15th of June, 1949. As of that date very few letters had been received.

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## OF GENERAL INTEREST

All of the letters received stated that the physician would be very happy to continue as a participating doctor of medicine irrespective of the income status of the Blue Shield subscriber, and some admitted that they had been working on this basis prior to the present time. It was assumed that the physicians that did not respond were in accord with this change and consequently would continue as Blue Shield participating doctors of medicine.

At the time that these changes will go into effect, all of the participating doctors of medicine will be advised and they also will be advised of any contract changes or changes in the Blue Shield schedule of allowances. A committee of the Board of Directors is now studying the present schedule of payments to doctors with the anticipation of correcting any inequitable payments.

It is the intention that by increasing the present income status Blue Shield can more completely demonstrate its benefits insofar as a service contract is concerned. Also it is felt that by being able to offer a service contract to more people it would be a very definite indication as to what a nonprofit medical care plan operated by the medical profession could do and establish, thus proving that nongovernment health insurance is doing the most for the least cost with the support of the American public and the American medical profession.

We are very pleased to notice the change that has transpired the last month as a result of our luncheon meeting with the physicians' office personnel, and it would appear that we have received fewer phone calls regarding various cases. As the office personnel knows the Blue Shield procedure, we find that we do not have to contact the physician's office as frequently as we did before to obtain necessary and additional information for a claim to be processed. We are very satisfied indeed with the results and appreciate the interest the physicians have shown in having their office personnel attend these luncheons. Many of the doctors have contacted us to thank us and comment on what an assistance this has been to their people, and they are also very pleased with the interest we have shown in the physician, in that he doesn't feel that he is out in the cold but that he is a part of his own prepaid medical care plan.

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## BOOK REVIEWS

### BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

**MEDICINE OF THE YEAR.** John B. Youmans, M.D. (Editor). Dean, College of Medicine, University of Illinois. 143 pages. Price \$5.00, cloth. Philadelphia: J. B. Lippincott Co., 1949.

**NEW YORK ACADEMY OF MEDICINE—Its First Hundred Years.** Philip Van Ingen. 573 pages. Illus. Price \$10.00, cloth. Morningside Heights, New York: Columbia University Press, 1949.

**OBESITY.** Edward H. Ryncarson, M.D., F.A.C.P., and Clifford F. Gastineau, M.D., of the Mayo Foundation of Rochester, Minnesota. 144 pages, 9 figures and 16 tables. Price \$3.50. Springfield: Charles C Thomas, 1949.

This excellent monograph takes in the many aspects of obesity, stressing the importance of this condition on the general health of the population, and endeavors to stimulate members of the medical profession to take a more active and aggressive interest in this affliction than they have in the past.

There is a well-written chapter on the physiology of obesity, where the many factors produced by the condition are pointed out, and in which the authors state that the various abnormalities associated with obesity are probably the result of the obesity rather than causative factors.

A large chapter is devoted to the many theories of the etiology of obesity, and each factor is clearly presented and discussed. The research findings and results of many investigators are evaluated in a clear and concise manner. Many of the theories propounded have not been proven, and the author's opinion is that obesity is directly due to an individual's overeating, but they stress that many theories still exist relative to the problem of obesity and its causes.

The chapter devoted to diet and reduction therapy, giving details and reasoning, is very worthwhile. It contains several tables and charts by which one can evaluate reduction, and it gives a clear-cut method of procedure in handling obese individuals.

The final chapter deals with such subjects as psychotherapy, various drugs used in curbing appetites, treat-

ment of obesity, and the mechanical physiotherapy methods employed in some attempts in reduction.

There is a complete bibliography for ready reference on various aspects of the subject, listing 422 articles.

E. W. MINTY, M.D.

### CONGENITAL DISLOCATION OF THE HIP

(Continued from Page 752)

**DR. C. N. HENSEL, Saint Paul:** I would like to take exception to Dr. Rigler's suggestion that all newborns have a routine x-ray of the hip before leaving the hospital. It seems that there is a growing tendency to want the x-ray department and laboratory to make our diagnosis for us, all of which tends to blunt diagnostic acumen. As I have seen from these pictures tonight, the clinical signs of subluxation are easily recognized and should be sought for, and only when they are found should x-ray be ordered.

**DR. RIGLER:** I don't think that x-ray examination is a laboratory procedure. It is just a part of the physical examination. It is artificial to try to distinguish between one kind of physical examination and another. You might as well decry the use of the stethoscope because clinicians no longer learn to hear the heart with the ear itself. It is a matter rather of which examination is most easily done and gives you the most information with the least trouble on the part of the patient. I think the important thing is to make a diagnosis.

**DR. HART (in closing):** The dysplastic hip with displacement usually is not dislocated but is subluxated during early infancy. There is considerable chance for error in the x-ray interpretation. Both the clinical physician and the roentgenologist must be enthusiastic about the subject of hip dysplasia if routine x-ray studies are made at birth and at several periods during the first six months of life. Co-ordinated clinical and x-ray studies are important because at present there are no valuable statistics in this country on this interesting subject.

The meeting was adjourned.

A. E. CARDLE, Secretary

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